



Research Report

A Developmental Model of the Natural Laws (*Niyāma*) in Theravāda Buddhism

BY

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International Buddhist Studies College

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Research Title: A Developmental Model of the Natural Laws (*Niyāma*) in Theravāda Buddhism

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ABSTRACT

This qualitative method research was conducted with two objectives, namely: - (1) to explore natural laws (*niyāma*) as appeared in Tipiṭaka and Commentaries, and (2) to explore natural laws (*niyāma*) from modern scholars' perspectives and to propose a developmental model of the natural laws (*niyāma*) in Theravāda Buddhism. Data were collected from documentary and In-depth interviews with ten experts and scholars from seven countries using the purposive and snowball sampling method. The interview forms were examined by the three CVI experts. Data were analyzed using content and descriptive analysis.

The findings showed that in Tipiṭaka, *niyāma*, the fixed course of the Dhamma existed in the contexts of Dependent Origination, the three characteristics, and the right path (*sammattaniyāma*). In commentaries, it was categorized into the Fivefold *Niyāma* expanding "From one to five." New laws, such as *Saṅgama-Niyāma*, *Buddha-Niyāma*, *Sāvaka-Niyāma*, and *Jāti-Niyāma*, were added through contemporary interpretations to modernize the concept. The developmental model of the threefold natural law consisted of *Kamma-Niyāma*, *Dhamma-Niyāma*, and *Citta-Niyāma* that worked together in perfect harmony, like a three-sided pyramid with a common apex. The visible dimensions of each side reveal the coexistence of the other two hidden sides.

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บทคัดย่อ

งานวิจัยเชิงคุณภาพฉบับนี้ดำเนินการโดยมีวัตถุประสงค์ 2 ประการ ได้แก่ (1) เพื่อศึกษากฎธรรมชาติ (นิยาม) ตามที่ปรากฏในพระไตรปิฎกและอรรถกถา และ (2) เพื่อศึกษากฎธรรมชาติ (นิยาม) จากมุมมองของนักวิชาการร่วมสมัย และเสนอแบบจำลองเชิงพัฒนาการของกฎธรรมชาติ (นิยาม) ในพระพุทศาสนาเถรวาท คณะผู้วิจัยดำเนินการเก็บรวบรวมข้อมูลจากเอกสารและการสัมภาษณ์เชิงลึกกับผู้เชี่ยวชาญและนักวิชาการ 10 ท่านจาก 7 ประเทศทั่วโลก โดยใช้วิธีการสุ่มตัวอย่างแบบเจาะจงและแบบสโนวบอล ดัชนีความเที่ยงตรงเชิงเนื้อหาของแบบฟอร์มคำถามเพื่อการสัมภาษณ์เชิงลึกได้รับการตรวจโดยผู้เชี่ยวชาญ 3 ท่าน มีค่า CVI = 1.0 ก่อนนำไปใช้งานจริง วิเคราะห์ข้อมูลด้วยการวิเคราะห์เนื้อหา และการวิเคราะห์เชิงพรรณนา

ผลวิจัยชี้ให้เห็นว่า ในชั้นคัมภีร์พระไตรปิฎก นิยามปรากฏอยู่ในบริบทของปฎิจจสมุปบาท, สามัญญลักษณะ และธรรมที่กำหนดแน่นอนอนุกถาง (สัมมัตตนิยาม) ในคัมภีร์ชั้นอรรถกถา นิยามถูกจัดหมวดหมู่ห้าประการ “จากหนึ่งเพิ่มเป็นห้า” โดยขยายความจากธรรมนิยามในพระไตรปิฎก กฎธรรมชาติใหม่ๆ เช่น สังคมนิยาม พุทธนิยาม สาวกนิยาม และชาตินิยาม ได้ถูกเพิ่มเติมเข้ามาผ่านการตีความร่วมสมัยเพื่อทำให้แนวคิดนี้ทันสมัยมากยิ่งขึ้น แบบจำลองเชิงการพัฒนาของกฎธรรมชาติ 3 ประการประกอบด้วย กฎแห่งกรรม กฎแห่งธรรม และกฎแห่งจิต ที่ทำงานร่วมกันอย่างกลมกลืนสมบูรณ์ เหมือนพีระมิต 3 ด้านที่มีจุดยอดร่วมกัน มิติที่มองเห็นได้ของแต่ละด้านเผยให้เห็นการดำรงอยู่ร่วมกันของอีกสองด้านที่ซ่อนอยู่

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Head of the Research Project
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List of Abbreviations

A) Abbreviations of Pāli Scriptures

In this research paper, the research team has referred to various primary and secondary data sources. The system of abbreviations will be systematized as follows:

The Pāli Canon, using the Pāli texts series edited in Roman by the Pali Text Society (PTS). Its forms are to be quoted first as an abbreviation of the scripture, followed by volume and page number (s), e.g., **Vin.I.9.** refers to Vinaya Piṭaka, volume number 1 (Mahāvagga), page number 9, or **S.II.25.** refers to Saṃyutta Nikāya (of the Suttanta Piṭaka), volume number 2 (Nidāna-Vagga), page number 25. In the case of scriptures with only one book, the volume will be omitted. For instance, **Vbh.341.** refers to Vibhaṅga, Abhidhamma Piṭaka, page number 341.

- A. : Aṅguttaranikāya (5 vols.)
 AA. : Aṅguttaranikāya Aṭṭhakathā (Manorathapūraṇī)
 Comp. : Compendium of Philosophy (Abhidhammatthasaṅgaha)
 D. : Dīghanikāya (3 vols.)
 DA. : Dīghanikāya Aṭṭhakathā (Sumaṅgalavilāsinī)
 DhsA. : Dhammasaṅganī Aṭṭhakathā (Aṭṭhasālinī)
 Kh. : Khuddakapāṭha (Khuddakanikāya)
 Kv. : Kathāvatthu
 KvA. : Kathāvatthupparakaraṇa-Aṭṭhakathā
 M. : Majjhimanikāya (3 vols.)
 MA. : Majjhimanikāya Aṭṭhakathā (Papañcasūdanī)
 Ps. : Paṭisambhidāmagga (Khuddakanikāya)
 PsA. : Paṭisambhidāmagga-Aṭṭhakathā (Saddhammapakāsinī)
 PugA : Puggala-Paññatti-Aṭṭhakathā

S.	: Saṃyuttanikāya (5 vols.)
UdA.	: Udānaṭṭhakathā (Paramattha-Dīpanī)
Vbh.	: Vibhaṅga (Abhidhamma)
VbhA.	: Vibhaṅgatthakathā (Sammoha-Vinodanī)
Vin.	: Vinaya Piṭakaṃ (5 vols.)
Vism.	: Visuddhimagga

B) List of Common Scholarly Abbreviations used in the Research

Single	Plural	Full Word/Meaning
Assoc. Prof.		associate professor
Asst. Prof.		assistant professor
B.E.		Buddhist Era
Co., Ltd.		company limited
CVI		content validity index
C.E.		Common Era or Current Era
DO		dependent origination
DOI		Digital Object Identifier
Dr.		Doctor of Philosophy (PhD) degree
ed.	eds.	edited by, editor (s)
et al.		et alii/ and others
etc.		et cetera/ and others
e.g.		example gratia, example
HTTPS		Hypertext Transfer Protocol Secure
ibid.		ibidem/ in the same page, i.e., the same source that has been cited in the immediately preceding note
IBSC		International Buddhist Studies College

i.e.		id est, that is to say
KMITL		King Mongkut's Institute of Technology Ladkrabang
M.A.		Master of Arts
MCU		Mahachulalongkornrajavidyalaya University
MBSE		Model-based systems engineering
MBU		Mahamakut Buddhist University
n.		noun
no.	nos.	number (s)
Op. cit.		opera citato/ as referred
org		organization
Ph.D.		Doctor of Philosophy
Prof.		professor
PTS		Pali Text Society
P.		Puggalavādin
p.	pp.	page (s)
Th.		Theravādin
tr.	trs.	translated by, translator (s)
Ven.		venerable
vol.	vols.	volume (s)

Chapter 1

Introduction

1.1 Background and Significance of the Problems

Buddhism is a religion that aims to teach an understanding of the principles of natural law of causality and conditionality, which leads to equilibrium between faith and wisdom based on the full understanding of nature as they really are “In Dhamma, there is no creed and there are no dogmas.”¹ There is convincing evidence from Theravada Buddhism indicating the development of the “natural laws” or *niyāma*, one of the vital concepts to an endeavor to augment our wisdom in understanding Dhamma and its surroundings. The concept of *niyāma* has been interpreted currently by modern Buddhist scholars such as Ven. Phra Brahmaganabhorn (P.A. Payutto) defined *niyāma* as “orderliness of the law of nature, such law has a common characteristic as causality and conditionality”. Furthermore, it can be divided into five according to specific characteristics or types of relationship, namely: 1. *Utu-niyāma* 2. *Bīja-niyāma*; 3. *Citta-niyāma*; 4. *Kamma-niyāma*; 5. *Dhamma-niyāma*. The five types represent five natural laws concerning physical phenomena, organic reproduction, the working of mind, the working of human beings, and dependent co-arising, respectively.² Such an explanation has been widely recognized among Buddhists’ enthusiasm.

¹ Laurence-Khantipalo Mills, **Buddhism Explained**, (Bangkok: O.S. Printing House, 1999), p. 1.

² Phra Dhammapīṭaka (P.A. Payutto), **Buddhadhamma Revised and Expanded Edition**, 9th ed, (Thai Version), (Bangkok: Mahachulalongkornrajavidyalaya University, 2543), pp. 152-153.

However, when traced back to examine *niyāma* in the primary source of Tipiṭaka, the abovementioned five types of natural laws surprisingly cannot be found. The Exalted One did not subdivide into types but only just showed the essence, as the Buddha said in Paccaya Sutta and Uppādāya Sutta: “*Katamo ca bhikkhave, paṭiccasamuppādo. jātipaccayā bhikkhave jarāmaṇaṃ uppādā vā tathāgatānaṃ anuppādā vā tathāgatānaṃ t̥hitāva sā dhātu dhammaṭṭhitatā dhammaniyāmatā idappaccayatā*”³ “Whether there is an arising of Tathāgatas or no arising of Tathāgatas, that element still persists, the stableness of the Dhamma, the fixed course of the Dhamma (*dhamma-niyāmatā*), specific conditionality.”⁴ Whereas in Uppādāya Sutta, the Buddha said, “*Uppādā vā bhikkhave tathāgatānaṃ anuppādā vā tathāgatānaṃ t̥hitāva sā dhātu dhammaṭṭhitatā dhammaniyāmatā sabbe saṅkhārā aniccā’ti . . . sabbe saṅkhārā dukkhā’ti . . . sabbe dhammā anattā’ti.*”⁵

Monks, whether there be an appearance or non-appearance of Tathāgata, this causal law of nature⁶, this orderly fixing of things⁷ prevails, namely, All phenomena are impermanent (*aniccā*). . . misery (*dukkhā*). . . not the self (*anattā*)⁸

From the above Suttas, it is clear that the Buddha speaks about the presence of *niyāma* in only two distinct contexts, namely: - 1. the dependent origination; 2. the three characteristics.

Therefore, the great Buddhist commentator, Bhadantācariya Buddhaghosa, provides a meaning to *niyāma* as “certainty” as well by

³ Paccaya Sutta - S.II.25.

⁴ Bhikkhu Bodhi (tr.), **The Connected Discourses of the Buddha A New Translation of the Saṃyutta Nikāya**, Vol. II. 2 Vols. set. (Oxford: PTS, 2000), p. 1146.

⁵ A.I.285.

⁶ Dhātu-dhammaṭṭhitatā = sabhāva-t̥hitatā. Comy. Cf. Pts. Of Contr. 387, “that which, as cause, establishes elements as effects.” – look in footnote no.3, F.L. Woodward (tr.), **The Book of the Gradual Sayings**, Vol.I (Ones, Twos, Threes), (Oxford: The Pali Text Society, 2000), p. 264.

⁷ Dhamma-niyāmatā, “that which, as cause, invariably fixes things in our minds, as effects,” Cf.S.ii, 25 (K.S.ii, 21), where a further term is added, idappaccayatā, “the relation of this to that.” - look in footnote no.4, Op. cit.

⁸ Op. cit.

classifying it into five categories named “the fivefold order” as appears in the commentarial scriptures of *Sumaṅgalavilāsinī*⁹ and *Aṭṭhasālinī*:¹⁰

1. Caloric Order (*Utu-niyāma*);
2. Germinal Order (*Bīja-niyāma*);
3. Psychical Order (*Citta-niyāma*);
4. Moral Order (*Kamma-niyāma*);
5. Natural Phenomenal Order (*Dhamma-niyāma*) respectively.

Bhadantācariya Buddhaghosa further describes interestingly in each category: “Utu-niyāma means when in the rural areas of some times, picking flowers and fruits by cutting just once, the wind blow or does not blow, strong or weak sunlight, raining or no rain, lotus bloom in the daytimes and close at night time;”¹¹ The simultaneous blossoming, fructifying and sprouting of such and such trees at such and such seasons.¹²

Bhadantācariya Buddhaghosa has also expanded Dhamma-Niyāma into supernatural phenomenology that occurs in the life of Bodhisats¹³ starting from the conception to the extinction of the Aggregates (*khandha-parinibbāna*) that make ten thousand of the universes shaken: “The world-earthquake when Bodhisats proceed into the mother’s womb;”¹⁴ “Bodhisats taking conception, being born of a mother, their final enlightenment, as Tathāgata turning the wheel of Dhamma, the surrender of life and utter passing away: - the world-earthquake at each”.¹⁵

⁹ Commentary to the *Dīghanikāya*, a collection of long discourses.

¹⁰ Commentary to the *Dhammasaṅgaṇī*, the first book of the *Abhidhamma piṭaka*. - DA.II.432; DhsA.272.

¹¹ DA.II.432.

¹² Buddhaghosa, **The Expositor (Atthasālinī)**, Vol. II., 2 Vols. Set, tr. Maung Tin, (London: The Oxford University Press, 1921), p. 360.

¹³ Bodhisats, Bodhisattva, or Bodhisatta means one who has resolved to attain enlightenment for the helping of his fellow beings.

¹⁴ DA.II.432.

¹⁵ Buddhaghosa, **The Expositor (Atthasālinī)**, Vol. II., 2 Vols. Set, tr. Maung Tin, p. 360.

The explanations of the concept of *niyāma* in this commentarial age are vastly different from the explanations stated in Tipitaka, in terms of normal natural phenomena in everyday life and supernatural phenomena of the Buddha's life. However, these dissimilarities influence and affect the description of the Buddhist concept of *niyāma* later.

Studying the exegetical scriptures lets us know the rationale why modern scholars interpret *niyāma* extensively in terms of numerical and detailed description. Contemporary scholars apply phenomena that occur in everyday life as their method, as Venerable Phra Debvedi described: “When one feels headaches, this may be caused by brain tumor disease (*bīja-niyāma*). May be caused by living in a place where insufficient air, or too hot (*utu-niyāma*). Or maybe caused by one's anxiety (*kamma-niyāma*).”¹⁶

Another example to show how Buddhist scholar propounds *niyāma* is the making use of the term “natural law” to explain each *niyāma* widely in modern times as C.A.F. Rhys Davids says “This order which Buddhism saw in the universe has its five branches namely:- *kamma-niyāma*, order of act-and-result; *utu-niyāma*, physical (inorganic) order; *bīja-niyāma*, order of germs, or seeds (physical organic order); *citta-niyāma*, order of mind, or conscious life; *dhamma-niyāma*, order of the norm, or the effort of nature to produce a perfect type.”¹⁷

Likewise, another aspect to show the diversity of thought is that Ven. Ledi Sayadaw surprisingly mentioned the Eightfold Niyāma by adding three more distinct *niyāma* to his unique explanation. He explains:

Buddha-Niyāma as the order of the Buddha, which shows that the enlightenment of the Buddha was not coincidence. Meanwhile, *Sāvaka-Niyāma* in his aspect means the order of the disciples comprising the

¹⁶ Phra Thepveti (P.A. Payutto), *Buddhism as the Foundation of Science*, 3rd ed., (Thai Version). (Bangkok: Mahachulalongkornrajavidyalaya Printing House, 1993), p. 106.

¹⁷ C.A.F. Rhys Davids, ***Buddhism: A Study of the Buddhist Norm***, (London: Williams and Norgate, 1912), p. 119.

laymen, devas and Brahmās who have received deliverance from any one of the many Buddhas. Lastly, *Jāti-Niyāma* represents the order of birth.¹⁸

Having explained in this manner, it is evident that the modern Buddhist scholars explain *niyāma* by taking the core concept from the commentaries and then adding more detailed content later based on their autonomy. Some modern scholars' interpretations even more differed as described in Tipitaka and the exegetical scriptures. Thus, this evidence brought toward different perspective. That is to say, the development of *niyāma*'s explanation has a tendency or inclination to fluctuate in the future.

From these viewpoints, natural law can be understood as the inherent and universal principles that govern the functioning of the universe. These principles are not imposed by an external entity but are an intrinsic part of the nature of reality itself. Natural law operates impartially, affecting all beings and phenomena, and is not subject to personal preferences or biases. Learning natural laws enhances our understanding of the world, guiding decision-making and problem-solving. It fosters critical thinking, enabling us to anticipate outcomes and adapt to challenges. By understanding patterns of nature, we align our actions with universal principles, promoting sustainability, innovation, and a deeper connection to the environment.

From the above statements, the development of such idea has interesting patterns to study in depth. The researcher is particularly interested in studying “A Developmental Model of the Natural Laws (*Niyāma*) in Theravāda Buddhism” to bridge academic understanding with real-world applications and guide effective decision-making. This enriches the body of knowledge across disciplines and supports continuous development in both scholarly and practical contexts.

¹⁸ Ledi Sayadaw, **Manuals of Buddhism**, (Bangkok: Mahamakut Press, 1978), pp. 178, 247.

1.2 Statement of the Problems Desired to Know

The research starts with delineating the two researchable problems to be discussed. They are:

1.2.1 What are natural laws (*niyāma*) as appeared in Tipiṭaka and Commentaries?

1.2.2 What are natural laws (*niyāma*) from modern scholars' perspectives?

1.2.3 In what ways should a developmental model of the natural laws (*niyāma*) in Theravāda Buddhism be proposed?

1.3 Objectives of the Research

1.3.1 To explore natural laws (*niyāma*) as appeared in Tipiṭaka and Commentaries;

1.3.2 To explore natural laws (*niyāma*) from modern scholars' perspectives and to propose a developmental model of the natural laws (*niyāma*) in Theravāda Buddhism.

1.4 Scope of the Research

The scope of the research can be focused on the following three dimensions, namely: -1) Scope of Sources of Data; 2) Scope of Content; and 3) Scope of Key Informants. The details are as follows:

1.4.1 Scope of Sources of Data

The researcher focuses on studying A Developmental Model of the Natural Laws (*Niyāma*) in Theravāda Buddhism by first exploring deeply the primary resource of the Pāli Canon (Tipiṭaka), Commentaries (Atthakathā), etc., respectively by using the Pāli Text Society's Pāli version and English translation series. Second, the secondary sources were explored by usage of later Buddhist works of literature such as Sub-commentaries (Tīkā), Sub-Subcommentaries (Anutīkā), and Special Texts (Pakaraṇa-visesa), textbooks, research works, Doctoral dissertations and thematic papers, journals, books, encyclopedias, dictionaries, newspapers, including online sources, etc. All

these sources come from four languages, namely: Pāli, Sanskrit, English, and Thai.

Apart from this, sources of data also came from the in-depth interviews with ten key informants from eight countries¹⁹ around the world.

1.4.2 Scope of Content

The researcher has established a framework based on the two objectives for the exploration: - 1) Natural laws (*niyāma*) as appeared in Tipiṭaka and Commentaries, and 2) Natural laws (*niyāma*) from modern scholars' perspectives and proposing a developmental model of the natural laws (*niyāma*) in Theravāda Buddhism. Therefore, the research work focuses on the three areas as follows:

1. Natural Laws (*Niyāma*) as Appeared in Tipiṭaka and Commentaries

To understand the important contents of natural laws, the scope of the content under the first research objective is defined to study in three frameworks as follows: 1) Natural Laws as they Appeared in the Tipitaka, 2) Natural Laws as they Appeared in the Commentaries, and 3) Analysis of the Development of Natural Laws as Appeared in Tipiṭaka and Commentaries.

2. Natural Laws (*Niyāma*) from Modern Scholars' Perspectives and Proposing a Developmental Model of the Natural Laws (*Niyāma*) in Theravāda Buddhism

The teachings of natural laws have been conveyed through various and different perspectives of modern scholars and have evolved from the era of the Tipitaka to the modern era. The study under this objective requires extensive basic knowledge of the data collection process from scriptures and in-depth interviews.

The scope of the content under the second research objective is defined to study in three frameworks as follows: 1) Natural Laws by Scholars

¹⁹ See 1.4.3 Scope of Key Informants in this Chapter, and Topic 3.2 Key Informants in Chapter 3 for comparison.

in Thailand, 2) Natural Laws by International Scholars, and 3) Developmental Model of the Natural Laws.

1.4.3 Scope of Key Informants

This is qualitative research by analyzing data from documents and field studies relating to A Developmental Model of the Natural Laws (*Niyāma*) in Theravāda Buddhism. According to the second objective, some data and information were gathered from textual collection, and in-depth interviews were carried out. The key informants for in-depth interviews were the experts and scholars from both local and international salient organizations. The purposive and snowball sampling techniques were used based on the significance of the studies with a total of 10 key informants who are monks, Buddhist scholars, and philosophers from the Theravāda tradition. There is a total of seven countries²⁰ among the domestic and international organizations around the world, namely: - (1) Australia, (2) Myanmar, (3) USA, (4) Italy, (5) UK, (6) Poland, and (7) Thailand. The following name list exhibits all expert and scholar names who participated in this research:

AAA: In-depth Interviews

1. Venerable Ajahn Brahmali,²¹ Theravāda Buddhist monk, Bodhinyana Buddhist Monastery, Australia.
2. Venerable Dr. Tikphasara,²² Principal, Sītagū Ketumatī Buddhist Academy, Taungoo, Myanmar.
3. Ven. Dr. Nirupam Chakma,²³ Wat Dhammavihāra Hawaii, Buddhist Meditation Center, United States of America.

²⁰ See 1.4.3 Scope of Key Informants in this Chapter, and Topic 3.2 Key Informants in Chapter 3 for comparison.

²¹ Interview with Venerable Ajahn Brahmali, Theravāda Buddhist monk, Bodhinyana Buddhist Monastery, Australia, February 1, 2024.

²² Interview with Venerable Dr. Tikphasara, Principal, Sītagū Ketumatī Buddhist Academy, Taungoo, Myanmar, May 12, 2024.

²³ Interview with Ven. Dr. Nirupam Chakma, Wat Dhammavihāra Hawaii, Buddhist Meditation Center, United States of America, May 12, 2024.

4. Father Dr. Daniele Mazza,²⁴ Buddhist scholar, a member of the Pontifical Institute for Foreign Missions (PIME), Italy.

5. Assoc. Prof. Dr. Elizabeth June Harris,²⁵ Honorary Senior Research Fellow, University of Birmingham, UK.

6. Asst. Prof. Dr. Joanna Gruszevska,²⁶ Centre for Comparative Studies of Civilisations, Faculty of Philosophy, Jagiellonian University in Kraków, Poland.

7. Dr. Mark Francis Hoolahan,²⁷ Assistant Managing Editor, Office of Academic Journal Administration, President's Office, KMITL, Thailand.

8. Dr. Sanjoy Barua Chowdhury,²⁸ College of Religious Studies, Mahidol University, Thailand.

9. Prof. Dr. Somparn Promta,²⁹ Director of Center for the Study of Buddhist Philosophy, MCU, Thailand.

10. Prof. Dr. Soraj Hongladarom,³⁰ Lecturer of M.A. in Religion and Philosophy (International Program), IBSC, MCU, Thailand.

²⁴ Interview with Father Dr. Daniele Mazza, Buddhist scholar, a member of the Pontifical Institute for Foreign Missions (PIME), Italy, May 12, 2024.

²⁵ Interview with Assoc. Prof. Dr. Elizabeth June Harris, Honorary Senior Research Fellow, University of Birmingham, UK, February 1, 2024.

²⁶ Interview with Asst. Prof. Dr. Joanna Gruszevska, Centre for Comparative Studies of Civilisations, Faculty of Philosophy, Jagiellonian University in Kraków, Poland, May 12, 2024.

²⁷ Interview with Dr. Mark Francis Hoolahan, Assistant Managing Editor, Office of Academic Journal Administration, President's Office, KMITL, Thailand, May 12, 2024.

²⁸ Interview with Dr. Sanjoy Barua Chowdhury, College of Religious Studies, Mahidol University, Thailand, May 12, 2024.

²⁹ Interview with Prof. Dr. Somparn Promta, Director of Center for the Study of Buddhist Philosophy, MCU, Thailand, February 1, 2024.

³⁰ Interview with Prof. Dr. Soraj Hongladarom, Lecturer of M.A. in Religion and Philosophy (International Program), IBSC, MCU, Thailand, May 12, 2024.

CCC: CVI Examiners

The in-depth interview forms' content validity³¹ was examined with the Content Validity Index (CVI) by the 3 experts, namely: -

1. Most Venerable Phra Methavinairos, Assoc. Prof. Dr. MBU, Thailand;
2. Assoc. Prof. Dr. Praves Intongpan, Department of Philosophy and Religion, Faculty of Humanities, Kasetsart University, Thailand;
3. Associate Professor Dr. Amnaj Buasiri, Committee of Education Council, Ministry of Education, Thailand.

DDD: Locations for Field Studies

The location of this research covered 10 Institutes and Organizations:

1. Bodhinyana Buddhist Monastery, Australia;
2. Sītagū Ketumatī Buddhist Academy, Taungoo, Myanmar;
3. Wat Dhammavihāra Hawaii, Buddhist Meditation Center, United States of America;
4. Pontifical Institute for Foreign Missions (PIME), Italy;
5. University of Birmingham, UK;
6. Centre for Comparative Studies of Civilisations, Faculty of Philosophy, Jagiellonian University in Kraków, Poland;
7. Office of Academic Journal Administration, President's Office, KMITL, Thailand;
8. College of Religious Studies, Mahidol University, Thailand;
9. Center for the Study of Buddhist Philosophy, MCU, Thailand;
10. International Buddhist Studies College (IBSC), MCU, Thailand.

³¹ Animesh Hazari, **Research Methodology for Allied Health Professionals: A Comprehensive Guide to Thesis & Dissertation**, (Singapore: Springer, 2023), p. 77; Donna M. Mertens, **Research and Evaluation in Education and Psychology: Integrating Diversity with Quantitative, Qualitative, and Mixed Methods**, 6th ed., (Thousand Oaks: Sage, 2024), p. 312; See CVR for comparison in Herman Aguinis, **Research Methodology: Best Practices for Rigorous, Credible, and Impactful Research**, (California: Sage, 2024), p. 147.

1.5 Definition of the Terms Used in the Research

In this research, technical terms related to the study were frequently mentioned. To avoid some misunderstanding among them and to make the most accurate benefit to the study, the key definitions are thus given as follows:

1.5.1 Natural Laws refer to the fundamental principles that govern the functioning of the universe and all phenomena within it. These principles are often described in terms of natural laws or truths or *niyāma* in Pali that underlie the nature of existence. They are also known as the Five Niyāmas: 1. *utu-niyāma* 2. *bīja-niyāma*; 3. *citta-niyāma*; 4. *kamma-niyāma*; 5. *dhamma-niyāma*.

1.5.2 Tipiṭaka refers to the Pali Canon, the canonical collection of scriptures in Theravada Buddhism consisting of Vinaya Piṭaka, Suttanta Piṭaka, and Abhidhamma Piṭaka, emphasizing the teachings related to natural law or *niyāma*.

1.5.3 Commentaries refer to the commentaries to the Pali Canon (*atthakathā*), consisting of three main scriptures, namely: - 1. Sumaṅgalavilāsinī, commentary to Dīghanikāya; 2. The Expositor (Aṭṭhasālinī), commentary to Dhammasaṅgaṇī; 3. The Dispeller of Delusion (Sammohavinodanī), commentary to Vibhaṅga, including other commentaries and literature, emphasizing the teachings related to natural law or *niyāma*.

1.5.4 Modern Scholars refer to the perspectives of four contemporary Buddhist scholars and philosophers from the textual analysis, namely: - 1. Phra Brahmagunabhorn (P.A. Payutto); 2. Prof. Dr. Somparn Promta; 3. C.A.F. Rhys Davids; 4. Ven. Ledi Sayadaw, including the views of key informants as well.

1.5.5 A Developmental Model refers to a new model that has been created and proposed by the researcher team explaining the development of the natural laws (*niyāma*) in Theravāda Buddhism from the Tipiṭaka period to the modern era.

1.5.6 Theravāda Buddhism refers to the orthodox school of Buddhism, which is based on the Tipiṭaka or Pali Canon, emphasizing the teachings related to natural law or *niyāma* in the Pali tradition.

1.6 Advantages Expected to Obtain from the Research

This research paper contributes to the advantages as follows:

1.6.1 Acquisition of the Body of knowledge about natural laws (*niyāma*) appeared in Tipiṭaka and Commentaries.

1.6.2 Acquisition of the Body of knowledge about natural laws (*niyāma*) from modern scholars' perspectives.

1.6.3 Obtaining a developmental model of the natural laws (*niyāma*) in Theravāda Buddhism.

1.6.4 Bridging academic understanding of the natural laws (*niyāma*) with real-world applications and guiding effective decision-making.

1.6.5 Enriching the body of knowledge of the natural laws (*niyāma*) across disciplines supports continuous development in both scholarly and practical contexts.

Chapter 2

Concepts, Theories, and Related Research Works

In this chapter, the research team has reviewed literature from Buddhist concepts, relevant Western theories, and research works in line with both objectives, namely: To explore natural laws (*niyāma*) as appeared in Tipiṭaka and Commentaries; and to explore natural laws (*niyāma*) from modern scholars' perspectives and to propose a developmental model of the natural laws (*niyāma*) in Theravāda Buddhism.

2.1 The Concept of Natural Laws (*Niyāma*)

The following two topics will be discussed here: 1) Meanings of Natural Laws, and 2) Features of Natural Laws.

2.1.1 Meanings of Natural Laws

The Fivefold *Niyāma* serves as a framework to expound the phenomena of a rapidly degraded environment. Each facet of the degradation is a natural linking network, with the main cause from human beings. Starting from the world's overall heat degradation (*utu-niyāma*); degradation of heredity caused by human's intelligent innovation of genetic engineering in crops and animals (*bīja-niyāma*); mental degradation that has been overlooked in this era (*citta-niyāma*); moral or action degradation to reduce humans to be a lower-human (*kamma-niyāma*); natural and environmental degradation in which people live their lives (*dhamma-niyāma*).¹

¹ Mahatthanadull, Sanu. "Buddhist Response to Environmental Degradation under Conceptual Framework of the Five *Niyāma*". Proceedings Document. The 1st MCU International Academic Conference (MIAC) on Buddhism and World Crisis. Graduate School. May 29. 2015. BKK: MCU Printing: 65-78.

1. C.A.F. Rhys Davids has underlined the significance of *kamma-niyāma* by its results in a book named “Buddhism: A Study of the Buddhist Norm”²

From the book, it can be inferred that Buddhism in the universe of the virtues of any action would lead toward responsibility for the consequences according to the goodness law of nature. Therewith, not only meaning but types of *niyāma* are described thoroughly as “This order which Buddhism saw in the universe was called in Pali *niyāma*, that is, going-on, process. In it five branches, strands, phases were discerned: - *kamma-niyāma*, order of act-and-result; *utu-niyāma*, physical (inorganic) order; *bīja-niyāma*, order of germs, or seeds (physical organic order); *citta-niyāma*, order of mind, or conscious life; *dhamma-niyāma*, order of the norm, or the effort of nature to produce a perfect type”

2. Ledi Sayadaw has stated types of *niyāma* in a book named “Manuals of Buddhism”³

From the mentioned book, he created the eightfold unconventional types of *niyāma*. Such types are based on the commentary’s explanation. Then three more special types, namely: *Buddha-niyāma*; *Sāvaka-niyāma*; *Jāti-niyāma*, were added. Systematizing in this way makes his teaching very remarkable. For example, *Jāti-niyāma* were explained as “It is the order of precepts, etc., of the disciples, comprising the laymen, devas and Brahmās who have received deliverance from any one of the many Buddhas, surpassing in number the sands of the river Ganges, who have appeared in the cycles of aeons that have no knowable beginning”

3. Phra Debvedi (Payuddha Payutto) wrote about the five *niyāma* as natural law in a book named “*Buddhadhamma: Natural Laws and Values for Life*”⁴

² C.A.F. Rhys Davids, **Buddhism: A Study of the Buddhist Norm**, (London: Williams and Norgate, 1912), pp. 118-119.

³ Ledi Sayadaw, **Manuals of Buddhism**, (Bangkok: Mahamakut Press, 1978), p. 247.

⁴ Phra Debvedi (Payuddha Payutto), **Buddhadhamma: Natural Laws and Values for Life**, Tr. by Grant A. Olson, (Albany: State University of New York Press, 1995), p. 90.

The book described five types of natural law dealing with the three common characteristics: the state of impermanence, instability, arising, and fading away is called *aniccatā*. Being subject to the pressures of arising and fading away, experiencing pressures from latent conflict, and having a feeling of insufficiency is called *dukkhatā*. Being without a real self is called *anattatā*. The principle of dependent origination allows us to see these three conditions in all things, and it explains the relationship of interconnected factors in all things and the forms that those factors may take in nature.

Five various natural laws can be discerned, e.g., *dhammaniyāma*, the law concerning relationships between cause and effect; *utuniyāma*, natural law concerning physical inorganic matter, etc., all of which have a special relationship with *sukkhā* and *dukkhā* in life and also must have a direct bearing on a person's ethics or conduct.

4. Phra Brahmaganabhorn (P.A. Payutto) has mentioned how suffering and natural law are related in a book named “A Brief Introduction to the *Buddha-Dhamma*.”⁵

His book pointed out how natural law is concerned with human beings' suffering. He says the natural law of cause and effect is the truth of all things. If one knows this law, suffering cannot overwhelm one anymore. There is nothing that could cause one problem because one's wisdom knows and is therefore able to solve problems in accordance with the law of nature of cause and effect. It doesn't matter what one may encounter: there will be no suffering.

5. Phra Debvedi (Payuddha Payutto) has stated the extent of the science of the Five Niyāma in the book named “Buddhism as the Foundation of Science”⁶

⁵ Phra Brahmaganabhorn (P.A. Payutto), **A Brief Introduction to the Buddha-Dhamma**, Tr. by Bhikkhu Nirodho, Martin Seeger, (Bangkok: Phli-dhamma Publishing, B.E. 2554), p. 13.

⁶ Phra Debsobhon (Prayoon Dhammacitto), **Buddhism as the Foundation of Science**, (Thai edition), 3rd ed., (Bangkok: Mahachulalongkorn University Press, B.E.2536), p. 103.

From the work, it can be inferred that Science believes in *Dhamma-niyāma*. By limiting the scope of the study is limited to *Utu-niyāma* and *Bīja-niyāma*. Meanwhile, practical Buddhism is highlighted especially in the *Kamma-niyāma*. Although Abhidhamma study focuses on *Citta-niyāma* to take action related to *Kamma-niyāma* and *Dhamma-niyāma*.

6. Somparn Promta mentioned various types of natural law in a book named “Buddhism and Science”⁷

From the book, his method of explanation about *niyāma* is based on commentaries. This makes the number of types five. Moreover, he gives an explanation of each law as follows: 1. Physical Law means the law of nature relating to temperature and weather, or environmental phenomenology of earth, water, wind, sky; 2. Biological Law means the law of nature relating to reproduction and heredity; 3. Psychological Law means the law of nature relating to the working mechanism of the mind. It regulates how constituents of the mind affect behavior and the function of the mind; 4. Moral Law means the law of nature about the behavior of human beings. This ethical system is the process of *kamma*’s consequence, which consists of two sides: good action and bad action; and 5. Causal Law means the law of nature about relationships, cause and effect, or conditionality of all things.

7. Banjob Bannaruji mentioned the meaning of *Dhamma-niyāma* in a book named “*Paṭiccasamuppāda: Dhamma Process for Understanding Life*”⁸

From the book, it can be inferred that *dhammaniyāmatā* or *dhammaniyāma* means the certainty of ordinary, the state of certainty of Dhamma, the certainty of conditionality, e.g., depending on ignorance, arises mental formations.

⁷ Somparn Promta, **Buddhism and Sciences**, (Thai Edition), 2nd ed., (Bangkok: Chulalongkorn University Press, B.E. 2540), pp. 70-72.

⁸ Banjob Bannaruji, ***Paṭiccasamuppāda: Dhamma Process for Understanding Life*** (Thai Edition), 3rd ed., (Bangkok: Pornboon Printing, B.E. 2538), pp. 4-7.

8. Phra Dhammavisuddhikavi (Picit Dhitavañño) has mentioned *Kamma-niyāma* in a book named “Law of Kamma”⁹

The book gives an explanation that having *kamma* as a tribe means we have a partisan action. A good fraternity brings good and prosperity to us. In contrast, bad fraternity leads us to evil and degradation. The seeds of action that we do, whether good or bad, will grow and result from their origin. If we do a good thing, we are given a great inheritance. If we were evil, we were poor breeding. Suppose we establish the heredity of cursing. We were cursed by heredity already. But if we build the heredity of donation. This gene also makes us rich. It depends on the breed of action whether good or bad. This kind of action is a species of partisan races. The seed we sow or did.

2.1.2 Features of Natural Laws

1. Nārada Mahā thera has mentioned the feature of *Kamma-niyāma* in a book named “Buddhism in a Nutshell.”¹⁰ From the book, it can be concluded, *Kamma Niyāma* is a kind of natural law, like gravity, that operates without having to be directed by a divine intelligence. In Buddhism, *Kamma* is not a cosmic criminal justice system, and no supernatural force or God is directing it to reward the good and punish the wicked.

2. Vergilius Ferm has defined the term “laws” in the encyclopedia named “The Encyclopedia of Religion.”¹¹ From the work, law, in its most general sense, especially as it was used by the Hebrews and in Greek philosophy, the word law signifies every observed regularity of nature as well as of human conduct, such regularity being thought of as taking place in obedience to divine command. Not until the eighteenth century is the meaning of law as an objectively observed regularity, i.e., a “law of nature”, clearly and consistently distinguished from law as the idea of a norm or a system of norms of human conduct to which human beings

⁹ Phra Dhammavisuddhikavi (Picit Dhitavañño), **Law of Kamma**, (Thai Edition), 8th ed., (Bangkok: Mahamakut Buddhist University, B.E. 2547), pp. 42-43.

¹⁰ Nārada Mahā thera, **Buddhism in a Nutshell**, (Buddhist publication Society, Kandy, Sri Lanka, 1985), p. 30.

¹¹ Vergilius Ferm, **The Encyclopedia of Religion**, (New York, The Philosophical library, 1945), p. 435.

owe obedience, but which a man is free to disobey provided he is willing to suffer the penalty. In the terminology prevailing among present-day lawyers, the term law is confined to those rules of human conduct which are manipulated and enforced by the state or, at least, to such bodies of norms as are applied and interpreted in the same method in which state-enforced rules of human conduct are handled. If taken in this latter sense, the term law is broad enough to cover the phenomena of International Law and Ecclesiastical Law, which are not covered by the narrower meaning.

2.2 Theories of Natural Laws and Model Development

The following two theories will be presented here: 1) Elizabeth A. Mathin and natural laws theory, 2) Zhang, Jia, and Shuqun Yang and a modeling approach, and 3) Garrido D, Martín AJM and Pérez-Rueda E and the scientific systems modeling.

2.2.1 Theory of Natural Laws

Elizabeth A. Mathin defined the definition of natural laws in her book, "Dictionary of Law."¹² From the book, it can be inferred that natural laws, in a general sense, refer to natural laws that govern the universe that is neither created nor invented by anyone, but which exists of its own accord. They provide the permanent, underlying basis of all laws, which the philosophers of ancient Greece considered to be a kind of perfect justice with which the laws of man should conform as closely as possible. The theory of natural laws has formed an important part of jurisprudence throughout legal history. Natural law is distinguished from civil law, which is the body of law imposed by the state.

2.2.2 Theory of Model Development

Zhang, Jia, and Shuqun Yang¹³ mentioned a modeling approach in their article. From the study, it can be inferred that Model-

¹² See Elizabeth A. Mathin, **Dictionary of Law**, (Oxford: Oxford University Press, 1997), p. 304.

¹³ Zhang, Jia, and Shuqun Yang. "Recommendations for the Model-Based Systems Engineering Modeling Process Based on the SysML Model and Domain Knowledge" **Applied Sciences** 14, no. 10 (2024): 4010. <https://doi.org/10.3390/app14104010>

based systems engineering (MBSE) is a modeling approach used in industry to support the formalization, analysis, design, checking and verification of systems. In MBSE modeling, domain knowledge is the basis of the modeling. However, modeling does not happen overnight; it requires systematic training and a significant investment of resources.

Garrido D, Martín AJM and Pérez-Rueda E¹⁴ mentioned approaches and applications of the scientific systems modeling in their article. From the study, it can be inferred that the development of modeling tools has permitted an increased understanding of how components in different systems interact and behave. Thus, systems modeling has led to critical advances in several areas, such as medicine, biotechnology, and engineering. Applications include the study of ecological models, diseases and the impact of treatments, microorganism responses to specific environments, and the interactions between biomolecules.

2.3 Related Research Works

Research works related to this study are under the two objectives set. The researcher therefore determined the presentation topics to be two: 1. Research Works Related to Natural Laws (*Niyāma*) as Appeared in the Tipiṭaka and Commentaries, and 2. Research Works Related to Natural Laws (*Niyāma*) from Modern Scholars' Perspectives and A Developmental Model of the Natural Laws (*Niyāma*) in Theravāda Buddhism. The details are as follows:

2.3.1 Research Works Related to Natural Laws (*Niyāma*) as Appeared in Tipiṭaka and Commentaries

1. Ven. Nyarnait Thara studied the meanings of *Niyāma* that appeared in Theravada Tipiṭaka and Commentaries in his Ph.D. Dissertation “The Concept of the Five *Niyāma* in Theravāda Buddhism.”¹⁵

¹⁴ Garrido D, Martín AJM and Pérez-Rueda E, “Editorial: Systems modeling: Approaches and applications–Volume II”. **Front. Mol. Biosci.** 9 (2022):1048727. <https://doi.org/10.3389/fmolb.2022.1048727>

¹⁵ Ven. Nyarnait Thara, “The Concept of the Five *Niyāma* in Theravāda Buddhism”, **Ph.D. Thematic Paper (Buddhist Studies)**, (Graduate School: Mahachulalongkornrajavidyalaya, 2019), p. i.

From the study, it can be summarized that *Niyāma* in Suttanta Piṭaka refers to “restraint, constraint, restriction, inevitability, assurance, necessity”. It is occasionally found as “being fixed, a fixed course”, or “fixity”. As in Commentaries, it was translated as “certainty”.

2. Phramaha Rangsan Thammaraso (Saengseesom) has mentioned the relationship between Five *Niyāma* and *Kamma-niyāma* in his M.A. Thesis (Buddhist Studies) entitled “Relation of Kamma and Reincarnation Influencing on the Recall of Previous Life”¹⁶

From the thesis, it can be concluded that *Kamma-niyāma* relates to the Five *Niyāma* as being one of the five *Niyāma* which were divided from *Dhamma-niyāma*. The purpose of the classification of *Niyāma* as Fives is to simplify the principle to explain the cause and effect of nature for easier understanding among villagers and common people.

3. Phramaha Sompong Candavamso (Yungram) has mentioned human life under the law of nature in his **M.A. Thesis (Philosophy)** entitled “Human Nature in Theravada Buddhist Philosophy and Aristotelian Philosophy: A Comparative Study.”¹⁷

From the thesis, it can be concluded that from the viewpoint of Theravada Buddhist Philosophy, human social nature has both mundane and supramundane levels. Consciousness is by nature momentary (*khanika*). It arises, sustains, and perishes in every moment. Consciousness is subdivided into three sub-moments, namely, genesis (*uppāda*), development (*thīti*), and dissolution (*bhaṅga*). Besides, it is bound to the natural law or law of the Dhamma (*Dhamma-niyāma*).

¹⁶ Phramaha Rangsan Thammaraso (Saengseesom), “Relation of Kamma and Reincarnation Influencing on the Recall of Previous Life”, (Thai Edition), **M.A. Thesis (Buddhist Studies)**, (Graduate School: Mahachulalongkornrajavidyalaya, 2550), pp. 66.

¹⁷ Phramaha Sompong Candavamso (Yungram), “Human Nature in Theravada Buddhist Philosophy and Aristotelian Philosophy: A Comparative Study”, (Thai Edition), **M.A. Thesis (Philosophy)**, (Graduate School: Mahachulalongkornrajavidyalaya University, 2547), pp. iii-iv.

2.3.2 Research Works Related to Natural Laws (*Niyāma*) from Modern Scholars' Perspectives and A Developmental Model of the Natural Laws (*Niyāma*) in Theravāda Buddhism

1. **Betty Nguyen** has mentioned the development of the Natural Laws (*niyāma*) in her Ph.D. Dissertation, “Calamity Cosmologies: Buddhist Ethics and the Creation of a Moral Community”¹⁸

From the study, it can be inferred that the development of Natural Laws depends on the different periods, *dhamma*, or *adhamma*. This topic state of the natural and social aspects of the world and human existence occurs during the time of Gotama Buddha. More importantly, it illustrates that this cosmic period is a time in which all five of the *niyāma*-s are in order. In the future after Gotama Buddha dies, however, it is a period of *adhamma* in which the five *niyāma*-s move perversely. Narrative time demonstrates the movements of the five *niyāma*-s in cosmic time.

2. **Phra Rurngvit Aggadhammo, Sanu Mahatthanadull, Phramaha Nantakorn Piyabhani** have mentioned the feature of *Kamma-Niyāma* in their research work named “The Process of *Kamma* Rectification for Sustainable Health and Longevity for Thai Buddhists.”¹⁹

From the study, the finding shows that *Kamma-Niyāma*, as an integral part of the five *niyama*, features the connectivity to the *kamma* rectification. To begin the process of *Kamma* Rectification, the *kamma* rectifier must first have a right view of the meaning of the words “*kamma*” and “*kamma* rectification”. Together with the right view of the causes of sustainable health and longevity, “*kamma* as one of the five *niyāma*”, “belief”, and “scientific knowledge”, and the relationship between *kamma* and “health and longevity”.

3. **Phramaha Somphong Santacitto** has analyzed the characters of *niyāma* in his research work named “An Analytical Study of the Concept

¹⁸ Betty Nguyen, “Calamity Cosmologies: Buddhist Ethics and the Creation of a Moral Community”, **Doctor of Philosophy Dissertation (Languages and Cultures of Asia)**, (Graduate School: University of Wisconsin-Madison, 2014), p. 70.

¹⁹ Phra Rurngvit Aggadhammo, Sanu Mahatthanadull, Phramaha Nantakorn Piyabhani, “The Process of *Kamma* Rectification for Sustainable Health and Longevity for Thai Buddhists”, **The Journal of International Buddhist Studies College**, Vol.10 No.1, (2024): 20-35. <https://so03.tci-thaijo.org/index.php/ibsc/article/view/278364>

of *Dhamma* as Natural Law in Theravāda Buddhism.”²⁰ From the study, it can be inferred that *Niyāma* characterizes two implications. They are non-moral natural law, and moral natural law. Moreover, the role that these laws play at the individual, social and environmental levels, and the manner in which those levels are interrelated as a result of those laws.

4. Sakchai Sakabucha has mentioned the legal justice in the philosophy of natural law in his research work named “Creating of Just Peace in Thai Society: An Integrated Study of Buddhist Justice in Theravada Buddhism as Exposed by Somdet Phra Buddhaghosācariya (P.A. Payutto)’s Writing and the Legal Justice in the Philosophy of Natural Law”²¹

From the study, the finding shows that natural law is referred to as *Niyāma*, which is divided into five categories: *Utu Niyāma* (physical laws), *Bīja Niyāma* (biological laws), *Citta Niyāma* (psychological laws), *Kamma Niyāma* (moral laws related to actions and their consequences), and *Dhamma Niyāma* (the laws of Dhamma). Of these, *Kamma Niyāma* is directly related to human behavior and plays a crucial role in promoting peaceful coexistence in society.

5. Somkiet Chaiyabhumi, Suchart Kartangchol, and Pensri Bangbon have analyzed the developmental model of *Niyāma*, including the perspectives of modern scholars, in their Ph.D. thematic paper entitled, “The Analytical Study of the Categorization of the Five *Niyāma*.”²²

Niyāma is often used to refer to the Buddha’s teachings concerning the manifestation of reality or the nature of existence.

²⁰ Phramaha Somphong Santacitto, “An Analytical Study of the Concept of *Dhamma* as Natural Law in Theravāda Buddhism”, **M.A. Thesis (Buddhist Studies)**, (Graduate School: Mahachulalongkornrajavidyalaya University, 2006), p. ii. <https://e-thesis.mcu.ac.th/thesis/3850>

²¹ Sakchai Sakabucha, “Creating of Just Peace in Thai Society: An Integrated Study of Buddhist Justice in Theravada Buddhism as Exposed by Somdet Phra Buddhaghosācariya (P.A. Payutto)’s Writing and the Legal Justice in the Philosophy of Natural Law”, **The Journal of International Buddhist Studies College**, Vol.8 No.1: 48-60. <https://so03.tci-thaijo.org/index.php/ibsc/article/view/280741>

²² Somkiet Chaiyabhumi, Suchart Kartangchol, Pensri Bangbon, “The Analytical Study of the Categorization of the Five *Niyāma*”, **The Journal of Sirindhornparithat**, Vol.19 No.2 (2018): 52-64. <https://so06.tci-thaijo.org/index.php/jsrc/article/view/201028/140536>

According to commentaries, the minor outcome laws, which are of the meanings corresponding to original *Dhamma Niyāma*, are only four laws as follows: (1) *Utu Niyāma*, (2) *Bīja Niyāma*, (3) *Citta Niyāma*, and (4) *Kamma Niyāma*. All of these *Niyāmas* are different from the present Buddhist Scholars who interpret the minor *Dhamma Niyāma* with the same meanings as the big original *Dhamma Niyāma*. The *Dhamma Niyāma*, according to the commentary, is a classification to honor and glorify the Buddhas (*buddhapūjā*).

From the above review of related literature and research works, *Niyāmas* have a long history of evolution among the Buddhist texts and have been interpreted in countless ways by later perspectives in contemporary world. They will continue to be interpreted this way throughout the ages. The theory concerned with natural laws explains the universal principles governing physical realities believed by humans. Rooted in physics and philosophy, it affirms consistent patterns in nature, such as gravity and motion, contributing to scientific understanding and technological advancements in a wide range of disciplines. While the theory relates to model development, helping to explain how to create simple models for analyzing complex systems. It involves defining the problem, generating concepts, modeling, validating, and improving the model. Developing effective models enhances understanding while acknowledging limitations and uncertainties.

It can be seen that there is still no direct research on “A Developmental Model of the Natural Laws (*Niyāma*) in Theravāda Buddhism”. Thus, the researcher team should study further on this matter scrupulously to fulfil the academic gap and promote a clearer understanding of society and the world.

The conceptual framework of the research exhibits the significant research process in terms of input, process, and output as follows:

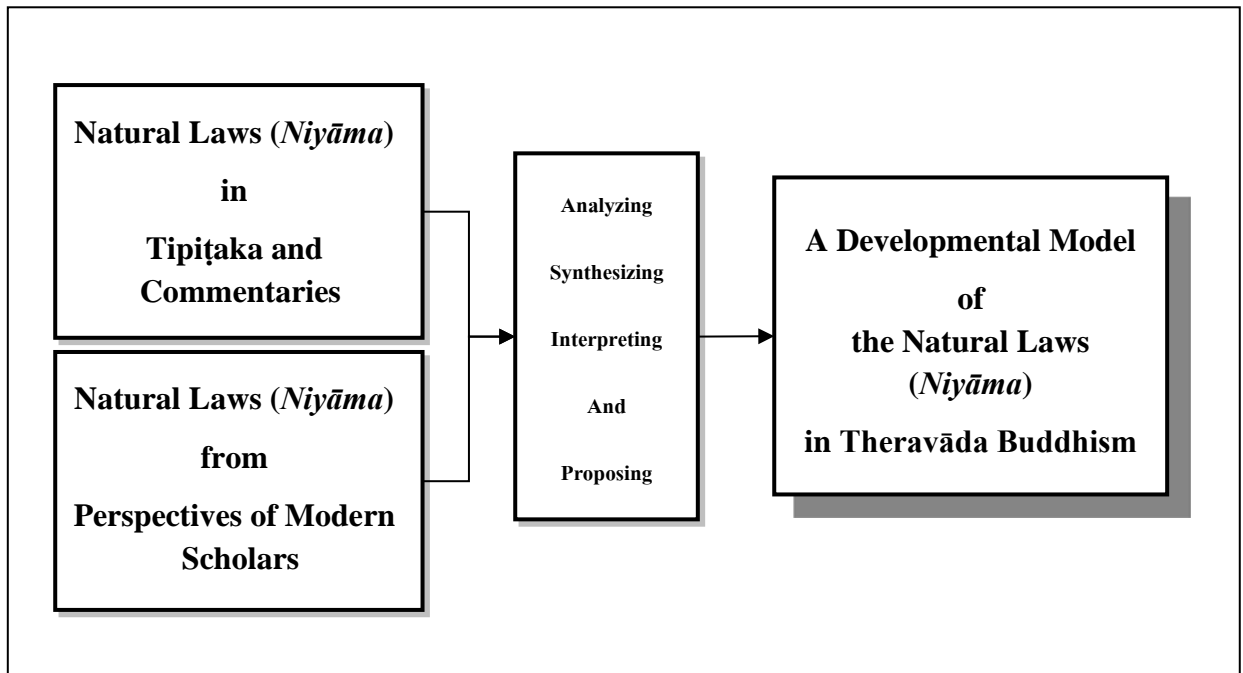


Chart 2.1: Conceptual Framework

Chapter 3

Research Methodology

In the study of this research “A Developmental Model of Natural Laws (*Niyāma*) in Theravāda Buddhism”, the following two objectives are to be examined, namely: - (1) to explore natural laws (*niyāma*) as appeared in Tipiṭaka and Commentaries, and (2) to explore natural laws (*niyāma*) from modern scholars’ perspectives and to propose a developmental model of the natural laws (*niyāma*) in Theravāda Buddhism.

The research methodology can be presented in five areas, namely: (1) Format of the Research, (2) Key Informants, (3) Research Instruments, (4) Collection of Data, and (5) Data Analysis. Details for each area are as follows:

3.1 Format of the Research

This is qualitative research studying documents and field studies. The methodology of the research was established by employing research materials and instruments. The research findings created a body of knowledge on a developmental model of the natural laws (*niyāma*) in Theravāda Buddhism.

3.2 Key Informants

To obtain insightful answers covering the issues that the researcher sought in the research questions, the key informants were a group of knowledgeable people who had skills in the concept of natural law in Theravada Buddhism and also had the potential to analyze the development of natural laws (*niyāma*) in Theravāda Buddhism.

The purposive and snowball sampling techniques were used based on the significance of the studies to select appropriate key informants. They are a group of ten monks, Buddhist scholars, and

philosophers from both regional and international organizations consisting of seven countries, namely: (1) Australia, (2) Myanmar, (3) USA, (4) Italy, (5) UK, (6) Poland, and (7) Thailand. Name lists are given as follows:

1. Venerable Ajahn Brahmali,¹ Theravāda Buddhist monk, Bodhinyana Buddhist Monastery, Australia.
2. Venerable Dr. Tikphasara,² Principal, Sītagū Ketumatī Buddhist Academy, Taungoo, Myanmar.
3. Ven. Dr. Nirupam Chakma,³ Wat Dhammavihāra Hawaii, Buddhist Meditation Center, United States of America.
4. Father Dr. Daniele Mazza,⁴ Buddhist scholar, a member of the Pontifical Institute for Foreign Missions (PIME), Italy.
5. Assoc. Prof. Dr. Elizabeth June Harris,⁵ Honorary Senior Research Fellow, University of Birmingham, UK.
6. Asst. Prof. Dr. Joanna Gruszewska,⁶ Centre for Comparative Studies of Civilisations, Faculty of Philosophy, Jagiellonian University in Kraków, Poland.
7. Dr. Mark Francis Hoolahan,⁷ Assistant Managing Editor, Office of Academic Journal Administration, President's Office, KMITL, Thailand.

¹ Interview with Venerable Ajahn Brahmali, Theravāda Buddhist monk, Bodhinyana Buddhist Monastery, Australia, February 1, 2024.

² Interview with Venerable Dr. Tikphasara, Principal, Sītagū Ketumatī Buddhist Academy, Taungoo, Myanmar, May 12, 2024.

³ Interview with Ven. Dr. Nirupam Chakma, Wat Dhammavihāra Hawaii, Buddhist Meditation Center, United States of America, May 12, 2024.

⁴ Interview with Father Dr. Daniele Mazza, Buddhist scholar, a member of the Pontifical Institute for Foreign Missions (PIME), Italy, May 12, 2024.

⁵ Interview with Assoc. Prof. Dr. Elizabeth June Harris, Honorary Senior Research Fellow, University of Birmingham, UK, February 1, 2024.

⁶ Interview with Asst. Prof. Dr. Joanna Gruszewska, Centre for Comparative Studies of Civilisations, Faculty of Philosophy, Jagiellonian University in Kraków, Poland, May 12, 2024.

⁷ Interview with Dr. Mark Francis Hoolahan, Assistant Managing Editor, Office of Academic Journal Administration, President's Office, KMITL, Thailand, May 12, 2024.

8. Dr. Sanjoy Barua Chowdhury,⁸ College of Religious Studies, Mahidol University, Thailand.

9. Prof. Dr. Somporn Promta,⁹ Director of Center for the Study of Buddhist Philosophy, MCU, Thailand.

10. Prof. Dr. Soraj Hongladarom,¹⁰ Lecturer of M.A. in Religion and Philosophy (International Program), IBSC, MCU, Thailand.

3.3 Research Instruments

The research instruments enable the researcher to explore the concept of natural laws and manage the data and information. The essential tools employed in this research consist of in-depth interview forms with technological devices in data collection and analysis, such as systematic analysis of related equipment.

Therefore, the research tools that have been chosen and employed to be suitable for the types of research are as follows:

1. In-depth interview forms,
2. Laptop,
3. The internet,
4. Photographs,
5. Camera,
6. Audio recordings,
7. Etc.

The abovementioned in-depth interview forms consisted of five questions, mainly based on the objectives of the research as well as the research's problems. They are as follows:

Question 1: Please define the word “Natural Laws” (*Niyāma*) in Buddhism as close to your understanding as possible.

⁸ Interview with Dr. Sanjoy Barua Chowdhury, College of Religious Studies, Mahidol University, Thailand, May 12, 2024.

⁹ Interview with Prof. Dr. Somporn Promta, Director of Center for the Study of Buddhist Philosophy, MCU, Thailand, February 1, 2024.

¹⁰ Interview with Prof. Dr. Soraj Hongladarom, Lecturer of M.A. in Religion and Philosophy (International Program), IBSC, MCU, Thailand, May 12, 2024.

Question 2: What is your view on these natural laws (*niyāma*) to our lives? (Please answer one by one.)

1. Caloric Law (*Utu-niyāma*);
2. Germinal Law (*Bīja-niyāma*);
3. Psychological Law (*Citta-niyāma*);
4. Moral Law (*Kamma-niyāma*);
5. Natural Phenomenal Law (*Dhamma-niyāma*)

Question 3: Do you agree with the Model of the *Niyāma*? (see Table No.1) Are there any *niyāmas* that could be added or removed?

The above in-depth interview forms' content validity¹¹ was examined with the Content Validity Index (CVI) by the 3 experts, namely: -

1. Most Venerable Phra Methavinairos, Assoc. Prof. Dr. MBU, Thailand;
2. Assoc. Prof. Dr. Praves Intongpan, Department of Philosophy and Religion, Faculty of Humanities, Kasetsart University, Thailand;
3. Associate Professor Dr. Amnaj Buasiri, Committee of Education Council, Ministry of Education, Thailand.

3.4 Collection of Data

This research is a qualitative study using the qualitative method, starting by collecting data from the primary source of Pali Canon (*Tipiṭaka*), Commentaries (*atthakathā*), Sub-commentaries (*tīkās*), Sub-sub-commentaries (*anutīkās*), etc., respectively by using the Pali Text Society's Pali version and English translation series. The data collection will also be gathered from secondary sources of Buddhist textbooks,

¹¹ Animesh Hazari, **Research Methodology for Allied Health Professionals: A Comprehensive Guide to Thesis & Dissertation**, (Singapore: Springer, 2023), p. 77; Donna M. Mertens, **Research and Evaluation in Education and Psychology: Integrating Diversity with Quantitative, Qualitative, and Mixed Methods**, 6th ed., (Thousand Oaks: Sage, 2024), p. 312; See CVR for comparison in Herman Aguinis, **Research Methodology: Best Practices for Rigorous, Credible, and Impactful Research**, (California: Sage, 2024), p. 147.

books, dictionaries, encyclopedias, Ph.D. thematic papers, Ph.D. dissertations, research works, and articles, including online sources, etc., in Pali, English, and Thai. In addition, in-depth interviews were employed to collect the information from key informants stated in Chapter 1, Topic 1.4.3 Scope of Key Informants. Such information was used in Chapter 4, where the analytical study is carried out.

However, the process of collecting, synthesizing, and utilizing the data may be understood depending on the response to each objective in the following ways:

3.4.1 Data Collection for the First Objective

Exploring natural laws (*niyāma*) as appeared in Tipiṭaka and Commentaries:

The researcher collected data from the primary source, especially the suttas from the Tipitaka, and the secondary source from various commentaries, such as the Mahāpadāna Sutta Atthakathā and Dhammasaṅgaṇī Atthakathā, a commentary to Abhidhammapitaka Dhammasaṅgaṇī, etc.

3.4.2 Data Collection for the Second Objective

Exploring the natural laws (*niyāma*) from modern scholars' perspectives and proposing a developmental model of the natural laws (*niyāma*) in Theravāda Buddhism.

This study was done by data collection from secondary sources, mostly from modern scholars' perspectives regarding natural laws (*niyāma*). The information and ideas obtained from the in-depth interview were also gathered and analyzed in this step. Nevertheless, the information obtained from key informants was used only for the 2nd objective.

3.5 Data Analysis

For data analysis, this research used two methods: (1) content analysis, and (2) descriptive analysis. First, content analysis was used to systematically examine textual data from the texts, and auditory data from the interviews. The researcher identified patterns, themes, or

frequencies in content to draw inferences. Second, descriptive analysis was used to summarize and describe the main features of a dataset. It helped identify patterns, trends, and relationships within the data without drawing conclusions or making predictions.

At the end, the research may be concluded using objectives as a determinant which resulting in two steps as follows:

Step 1: Natural laws (*niyāma*) as appeared in Tipiṭaka and Commentaries

1.1 Issues for Search: 1) Natural Laws (*Niyāma*) in Tipiṭaka
2) Natural Laws (*Niyāma*) in Commentaries
3) Developmental Analysis of Natural Laws (*Niyāma*) as Appeared in Tipiṭaka and Commentaries

1.2 Method: Documentary study

1.3 Data Sources: Tipiṭaka/Commentaries/Sub-commentaries
/Buddhist textbooks/Theses/Dissertations
/Research works /Journals

1.4 Instruments: Note papers/Computer

1.5 Data Collecting: Reading and conclusion

1.6 Data Analysis: Content analysis/Descriptive analysis

Step 2: Natural laws (*niyāma*) from modern scholars' perspectives, and to propose a developmental model of the natural laws (*niyāma*) in Theravāda Buddhism

2.1 Issues for Search: 1) Thai Scholars' Perspectives on Natural Laws (*Niyāma*)
2) International Scholars' Perspectives on Natural Laws (*Niyāma*)
3) A Developmental Model of the Natural Laws (*Niyāma*) in Theravāda Buddhism

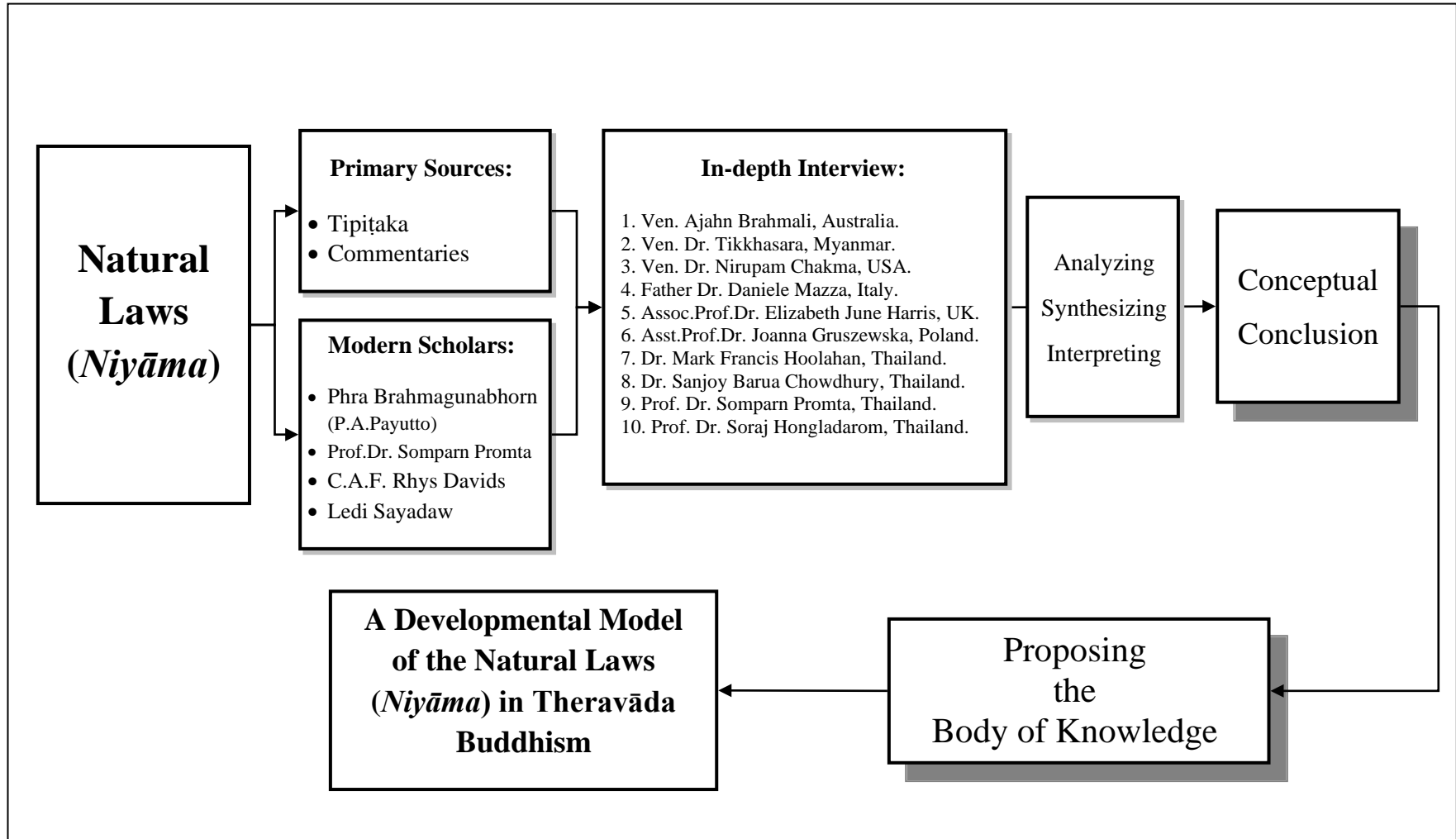
2.2 Method: Documentary study/In-depth interview

2.3 Data Sources: Tipiṭaka/Commentaries/Sub-commentaries/
Buddhist textbooks/Theses/Dissertations/

- Research works/Journals/Specialists/Key informants
- 2.4 Instruments:** Note papers/Voice recorder/In-depth interview forms
- 2.5 Data Collecting:** Reading and conclusion/In-depth interview
- 2.6 Data Analysis:** Content analysis/ Descriptive analysis

The following research process flow chart shows the steps of the entire research process that were carried out in accordance with the research objectives:

Chart 3.1 The Research Process



Chapter 4

Research Findings

In this chapter, the research team presented the findings obtained from investigating the two primary research objectives: 1) To explore natural laws (*niyāma*) as appeared in Tipiṭaka and Commentaries, and 2) To explore natural laws (*niyāma*) from modern scholars' perspectives and to propose a developmental model of the natural laws (*niyāma*) in Theravāda Buddhism. The first objective explored natural laws (*niyāma*) in the Tipiṭaka and Commentaries, focusing on their doctrinal meanings, classifications, and interrelations within the Theravāda Buddhist framework. The second objective was to explore various interpretations of *niyāma* from the perspectives of Thai and international modern scholars, comparing traditional and contemporary viewpoints to highlight both continuity and reinterpretation in modern contexts.

The chapter proposed a model of *niyāma* in Theravāda Buddhism that combines canonical foundations and modern interpretations, based on these explorations. This model provided a comprehensive framework for understanding the dynamic evolution of *niyāma* as a principle of natural and multidimensional laws in Buddhist thought. The framework for the presentation had been set to meet the objectives: To explore natural laws (*niyāma*) as appeared in Tipiṭaka and Commentaries, and to explore natural laws (*niyāma*) from modern scholars' perspectives and to propose a developmental model of the natural laws (*niyāma*) in Theravāda Buddhism, as the following points: 1) Natural Laws (*Niyāma*) as Appeared in Tipiṭaka and Commentaries, and 2) Natural Laws (*Niyāma*) from Modern Scholars' Perspectives and A Developmental Model of the Natural Laws (*Niyāma*) in Theravāda Buddhism.

4.1 Natural Laws (*Niyāma*) as Appeared in Tipiṭaka and Commentaries

The concept of natural laws (*niyāma*) is another concept that is very important to Buddhists because it is a concept about the natural order of things. It is a concept for humans to learn and observe phenomena or events around them, that is, events that they experience every day in their lives. Therefore, if humans do not learn to view nature correctly through such concepts, it may cause a distorted view of nature, even further away from reality.

However, the traces of the concept of natural laws in the parts that appear in the Tipiṭaka and the commentaries are different. If Buddhists cannot distinguish these differences, it may result in more confusion. Therefore, to study and point out the development of natural laws that appear in the Tipiṭaka and the commentaries, in this topic, the research team delved into the following 3 points: 1) Natural Laws (*Niyāma*) in Tipiṭaka, 2) Natural Laws (*Niyāma*) in Commentaries, and 3) Developmental Analysis of Natural Laws (*Niyāma*) as Appeared in Tipiṭaka and Commentaries as detailed below.

4.1.1 Natural Laws (*Niyāma*) in Tipiṭaka

The Pali Canon defines *niyāma* as “this causal law of nature, this orderly fixing of things.”¹ It is an element that already exists, whether the Buddha has arisen. It has a more causative sense of “inevitability” or “certainty”.² Interestingly, such a concept appeared only in a few places in the Tipiṭaka. The research team presents it in two topics: (1) Natural Laws as Dependent Origination (*Paṭiccasamuppāda*), and (2) Natural Laws as The Three Characteristics (*Tilakkhaṇa*).

¹ The Buddha says of *dhamma-niyāma* in Saṃyuttanikāya in the form of dependent origination (*paṭiccasamuppāda*), and Aṅguttaranikāya as the three common characteristics (*sāmaññalakkhaṇa*). S.II.1; A.I.285.

² Margaret Cone, **A Dictionary of Pali**, vol II, (Bristol: Pali Text Society, 2010), p. 599.

1. Natural Law as Dependent Origination (*Paṭiccasamuppāda*)

The first evidence appears as the Buddha uses *niyāma* to describe the inevitable working of dependent arising in the form of teachings on “the stability of the Dhamma”, the fixed course of the Dhamma, and Dependent Origination, as appeared in Paccaya Sutta:

- With existence as condition, birth’
- With clinging as condition, existence’
- With craving as condition, clinging’
- With feeling as condition, craving’
- With contact as condition, feeling’
- With the six sense bases as condition, contact’
- With name-and-form as condition, the six sense bases’
- With consciousness as condition, name-and-form’
- With volitional formations as condition, consciousness’
- With ignorance as condition, volitional formations’³

The term *paṭiccasamuppāda*⁴ has been translated into various English terms, e.g., dependent origination, dependent arising, interdependent co-arising, conditioned arising. To be correctly translated, it means “The Arising of Result Depending on a Cause”.⁵ Yet the most common translation is dependent origination or DO. It deals with the profound interrelationships among all things in the world and universe in the sense that all things do not exist alone without interacting with other things around them. For this reason, the Buddha went on to say, “*katamo ca bhikkhave, paṭiccasamuppādo. jātipaccayā bhikkhave jarāmarañam uppādā vā tathāgatānaṃ anuppādā vā tathāgatānaṃ ñhitāva sā dhātu dhammaññhitatā dhammaniyāmatā idappaccayatā*”⁶ Whether there is an

³ S.II.25.

⁴ In Sanskrit term used as “*pratītyasamutpāda*”.

⁵ Paṭhamakyaw Ashin Thiṭṭhila (Setṭhila) Aggamahāpaṇḍita (tr.), **The Book of Analysis (Vibhaṅga)**, p. xxxiv. (introduction).

⁶ S.II.25.

arising of *Tathāgatas* or no arising of *Tathāgatas*, that element still persists, the stableness of the Dhamma, the fixed course of the *Dhamma* (*dhamma-niyāmatā*), specific conditionality.⁷ It can be said that the Buddha simply uses *niyāma* to describe the intrinsic nature of things. The nature of the fixed course of the *Dhamma*.

From the Sutta, it is clear that the “*niyāma*” that appears is like its own causes and conditions. From this perspective, *niyāma* may seem like a straightforward principle. However, in reality, *niyāma* in the context of Dependent Origination is a complex principle that is difficult for ordinary people to comprehend. As the Venerable Ānanda once said to the Buddha: “Wonderful, lord, and marvelous it is, that whereas this doctrine of events as arising from causes is so deep and looks so deep, to me it seems as clear as clear can be!”⁸ Then the Buddha replied;

Do not say that, Ānanda, do not say that! This dependent origination is profound and appears profound. It is through not understanding, not penetrating this doctrine that this generation has become like a tangled ball of string, covered as with a blight, tangled like coarse grass, unable to pass beyond states of woe [*apāya*],⁹ the ill destiny [*dukkhati*], ruin [*vinipāta*] and the round of birth-and-death [*saṃsāra*]¹⁰

As the Buddha reminded Ānanda Thera, who earlier referred to *Paṭiccasamuppāda* with the word “deep”. The Sumaṅgalavilāsinī, a Commentary to the Mahānidāna Sutta, the profundity of Dependent Origination (*Paṭiccasamuppādagambhīratā*) is mentioned, “*Tattha atthagambhīratāya dhamma-gambhīratāya desanā-gambhīratāya paṭivedhagambhīratāyāti catūhi ākārehi paṭicca-samuppādo gambhīro nāma.*”¹¹

⁷ Bhikkhu Bodhi (tr.), **The Connected Discourses of the Buddha A New Translation of the Saṃyutta Nikāya**, Vol. I, 2 vols. set, p. 551.

⁸ D.II.55; T.W. and C.A.F. Rhys Davids (trs.), **Dialogues of the Buddha Translated from the Pali of the Dīgha Nikāya**, Part II, (London: Oxford University Press, 1910), p. 50.

⁹ “*Tattha apāyo ti: niraya-tiracchānāyoni-pittivīsaya-asurakāyā.*” “*Apāya* means states or places of loss and woe in 4 ways: (1) hell (*niraya*), (2) the animal kingdom (*tiracchānāyoni*), (3) realm of hungry ghosts (*pittivīsaya*), (4) host of demons (*asurakāya*)” - DA. II.496.

¹⁰ D.II.55; Op. cit.

¹¹ DA. II.493.

Which can be translated as “*Paṭiccasamuppāda* is said to be profound in four ways: profound in meaning, profound in Dhamma, profound in teaching, and profound in attainment”.

Therefore, *niyāma*, in this context, is a great and profound Dhamma principle. A principle that if anyone truly understands, they will be able to untie the knot that the Buddha compared to a tangled ball of string. When one understands the nature of things according to their causes and conditions, one will be able to transcend from the states of woe [*apāya*], the ill destiny [*dukkhati*], ruin [*vinipāta*], and the round of birth-and-death [*saṃsāra*], which are the highest goals that one can achieve, to the *dhamma-niyāmatā*¹² of things in the universe. One truly understands nature; one becomes a part of it.

2. Natural Law as The Three Characteristics (*Tilakkhaṇa*)

Niyāma in another context appears, similar to the first context, in the form of “causal law of nature,” but differs in content. In the Uppādāya Sutta, the Exalted One said the three characteristics:¹³

Uppādā vā bhikkhave tathāgatānaṃ anuppādā vā tathāgatānaṃ
ṭhitāva sā dhātu dhammaṭṭhitatā dhammaniyāmatā sabbe saṅkhārā
*aniccā’ti.. . sabbe saṅkhārā dukkhā’ti.. . sabbe dhamma anattā’ti.*¹⁴

¹² *Dhammaniyāma* is a synonym for *paṭiccasamuppāda*, as it appears in the Saṃyutta Nikāya, Nidānavagga. They are: *dhammaṭṭhitatā*; *dhammaniyāmatā*; *idappaccayatā*; *tathatā*; *avitathatā*; *anaññathatā*; *idappaccayatā*; *paṭiccasamuppāda*, etc.

The original texts are as follows, “*dhammaṭṭhitatā dhammaniyāmatā idappaccayatā. . . avijjāpaccayā bhikkhave saṅkhārā. Iti kho bhikkhave yā tatra tathatā avitathatā anaññathatā idappaccayatā ayaṃ vuccati bhikkhave paṭiccasamuppādo.*” *Āhāra Vagga - S.II.25.*

¹³ The three characteristics (*tilakkhaṇa*) or the Common Characteristics (*sāmañña-lakkhaṇa*) are *aniccatā-impermanence*; *dukkhatā-state of suffering*; *anattatā-soullessness or not self*.

¹⁴ A.I. 285.

Monks, whether there be an appearance or non-appearance of *Tathāgata*, this causal law of nature,¹⁵ this orderly fixing of things¹⁶ prevails, namely, All phenomena are impermanent.

About this a *Tathāgata* is fully enlightened, he fully understands it. So enlightened and understanding he declares, teaches and makes it plain. He shows it forth, he opens it up, explains and makes it clear: this fact that all phenomena are impermanent (*aniccā*).

Monks, whether there be an appearance or non-appearance of *Tathāgata*, this causal law of nature, this orderly fixing of things prevails, namely, All phenomena are misery (*dukkhā*).

About this a *Tathāgata* is fully enlightened. . .

Monks, whether there be an appearance or non-appearance of *Tathāgata*, this causal law of nature, this orderly fixing of things prevails, namely, all phenomena are not the self (*anattā*).

About this a *Tathāgata* is fully enlightened. . .¹⁷

The above *Sutta* points out that the three characteristics are the causal law of nature or the orderly fixing of things that existed before the world and the universe, even before the emergence of the Buddha. Howsoever, *niyāma* in this context means *dhamma-niyāma*, which indicates the intrinsic nature of things in three entities as impermanent (*aniccā*), misery (*dukkhā*). In addition, all dhammas have the characteristic of being no self (*anattā*), which is no less important than the reality of dependent origination.

¹⁵ *Dhātu-dhammaṭṭhitatā = sabhāva-ṭṭhitatā*. Comy. Cf. Pts. Of Contr. 387, “that which, as cause, establishes elements as effects.” - look in footnote no.3, **The Book of the Gradual Sayings**, Vol.I (Ones, Twos, Threes), Tr. F.L. Woodward, (Oxford: The Pali Text Society, 2000), p. 264.

¹⁶ *Dhamma-niyāmatā*, “that which, as cause, invariably fixes things in our minds, as effects,” Cf.S.ii, 25 (K.S.ii, 21), where a further term is added, *idappaccayatā*, “the relation of this to that.” - look in footnote no.4, F.L. Woodward (tr.), **The Book of the Gradual Sayings**, Vol.I (Ones, Twos, Threes), (Oxford: The Pali Text Society, 2000), p. 264.

¹⁷ A.I. 285; F.L. Woodward (tr.), **The Book of the Gradual Sayings (Anguttara-Nikāya)**, Vol. I (Ones, Twos, Threes), p. 265.

3. Natural Law as the True Path of Assurance (*Sammattaniyāma*)

However, in addition to the definitions in the context of *paṭiccasamuppāda* and *sāmaññalakkhana* as mentioned above, it is found that there is another definition in the context of *sammattaniyāma*, as Dh. Dhivan agreed that *niyāma* also implies “assurance about rightness or *sammatta-niyāma*:

Dhamma-niyāma, or the ‘necessity of nature’, is hence a canonical concept meaning *paṭiccasamuppāda* or dependent arising in the special sense of its objective truth, its existence independent of the Buddhas who teach it. *Niyāma* secondly occurs in the phrase *sammatta-niyāma*, ‘necessity or assurance about rightness’, used to characterize the inevitable progress of a faith- or wisdom-follower towards eventual full awakening¹⁸

Here we delve deeper into the roots of this idea. *Sammattaniyāma* appears in Pathama Sammatta-Niyāma Sutta, Dutiya Sammatta-Niyāma Sutta, and Tatiya Sammatta-Niyāma Sutta,¹⁹ respectively:

Monks, pursuing five courses and hearkening unto *Saddhamma* he must become one to enter the way²⁰, the right way²¹ in right things. What five?

He does not belittle talk, nor belittle the talker, he does not belittle the self, hears Dhamma with unperturbed mind and with mind one-pointed, makes thinking orderly.

¹⁸ Dh. Dhivan, “**The Five Niyāmas, Sangharakshita, and the Problem of Karma**, (May 2009).

¹⁹ Catuttha-Paṇṇāsako - A.III.174-175; Chapter XVI.-Saddhamma, The Saddhamma Way - E. M. Hare (tr.), **The Book of the Gradual Sayings (Anguttara-Nikāya)**, Vol. III (The Books of the Fives and Sixes), (London: PTS, 1973), pp. 131-132.

²⁰ *Niyāma*.

²¹ *Together*.

Verily, monks, pursuing these five courses and hearkening unto *Saddhamma* he must become one to enter the way, the right way in right things²²

Sammattaniyāma here implies entering into the right way in all *kusala dhammas*. That is, it is the orderly fixing of things to attain enlightenment. It is a law that has a specific context for transcending beyond the ordinary person to become a noble individual (*ariya-puggala*). It also appears in the Abhidhamma Piṭaka, Kathāvatthu, and Niyatassaniyāmakathā²³ regarding the orderly fixing of things of a certain person:

Niato niyāmaṃ okkamātīti?

In Amantha.

Mikattaniyatho sammattaniyāmaṃ okkamati, sammataniadho micchattaniyāmaṃ okkamātīti?

*Na h'evaṃ vattabbe . . .*²⁴

The above active dialogue between Theravādin and Puggalavādin arguing about *sammattaniyāma* can be translated as follows:

Th:²⁵ Do you imply that the so-called 'Assured'²⁶ enters upon the True Path of Assurance when assured of immediate retribution?

P:²⁷ Yes.

²² A.III.174; E. M. Hare (tr.), **The Book of the Gradual Sayings (Anguttara-Nikāya)**, Vol. III (The Books of the Fives and Sixes), (London: PTS, 1973), p. 132.

²³ Terasamo Vaggo, *Niyato niyāmaṃ okkamātīti?* - Kv.II.480; Book XIII, Of One whose Salvation is Morally Certain (*niyata*) - Shwe Zan Aung and Rhys Davids (trs.), **Points of Controversy**, (London: Messrs. Luzac & Company, LTD., 1969), p. 276.

²⁴ Kv.II.480.

²⁵ Theravādin or Sakavādī monks.

²⁶ The Pañcapakaraṇa Commentary describes a certain person (*niyata*) as a Bodhisattva who has received a prophecy from the Buddha that he definitely will attain enlightenment (wisdom as the means of enlightenment) in the future - KvA.143.

²⁷ Puggalavādin, which refers to monks in the Pubbaseliya and Paraseliya Sects.

Th: And upon the False Path of Assurance when assured of final salvation? . . . That finally, entrance upon Assurance comes after practice of the applications in mindfulness and the rest of the Factors of Enlightenment? . . .²⁸

Buddhaghosācāriya explains that the reason why the Pubbaseliya and Paraseliya schools answer yes is because they hold the view that a Bodhisattva who has received the *ekamsa-vyākaraṇa* is said to have reached the *Niyāma*. They believe that receiving such a prediction is a step down to a certain kind of *Niyāma*. This differs from the view of the Sakavādī, who believe that receiving the *ekamsa-vyākaraṇa* does not constitute reaching the *Niyāma*.²⁹ Monks with different views argued in this way.

In the Pañcapakaraṇaṭṭhakathā, a commentary to the Kathāvatthu of Abhidhamma Piṭaka, it says “*Idāni niyatassa niyāmakathā nāma hoti. Tattha duvidho niyāmo micchattaniyāmo ca anantariyakammaṃ sammattaniyāmo ca ariyamaggo, ime dve niyāme thapetvā añño niyāmo nāma natthi*”³⁰ which can be translated as:

Now follows the controversy concerning one whose salvation is morally certain, he having entered upon assurance. *Niyāma* (assurance) is of two kinds, according as it is in the wrong or the right direction. The former is conduct that finds retribution without delay [*anantariyakamma*], the latter is the Ariyan Way [*ariyamagga*]. And there is no other (excepting these two).³¹

It can be said that *niyāma* consists of two: (1) the wrong assurance (*micchattaniyāma*): the five immediacy-deeds, and (2) the right assurance (*sammattaniyāma*): the Noble Path, *Sammattaniyāma* is also known for the stability of attaining the Dhamma that belongs to the Noble Ones, which refers to the four groups of people who have transcended

²⁸ Shwe Zan Aung and Rhys Davids (trs.), **Points of Controversy**, (London: Messrs. Luzac & Company, LTD., 1969), p. 276.

²⁹ KvA.143; Bimala Churn Law (tr.), **The Debates Commentary (Kathāvatthuppakaraṇa-Aṭṭhakathā)**, (London: Humphrey Milford, 1889), p. 175.

³⁰ KvA.143.

³¹ Bimala Churn Law (tr.), **The Debates Commentary (Kathāvatthuppakaraṇa-Aṭṭhakathā)**, (London: Humphrey Milford, 1889), p. 175.

worldly life to become Noble Individuals in the Buddhist religious system: Stream-Enterer (*sotāpannapuggala*), Once-Returner (*sakadāgāmipuggala*), Non-Returner (*anāgāmipuggala*), and the Worthy One (*Arahattapuggala*). As evidenced in the Paṭisambhidāmagga, Treatise on Insight:

‘So vata Bhikkhave bhikkhu sabbasaṅkhāre aniccato samanupassanto anulomikāya khantiyā samannāgato bhavissatīti’ *ṭhānaṃ etaṃ vijjati, ‘anulomikāya khantiyā samannāgato sammattaniyāmaṃ okkamissatīti’* *ṭhānaṃ etaṃ vijjati, ‘sammattaniyāmaṃ okkamamāno sotāpattiphalaṃ vā sakadāgāmiphalaṃ vā anāgāmiphalaṃ vā Arahattaphalaṃ vā sacchikarissatīti ṭhānaṃ etaṃ vijjati.*³²

‘Bhikkhus, when a bhikkhu sees any formations as impermanent it is possible that he shall make a choice in conformity [with actuality], and making a choice in conformity [with actuality] it is possible that he shall enter upon the certainty of rightness, and by entering upon the certainty of rightness it is possible that he shall realize the fruit of stream-entry or the fruit of once-return or the fruit of non-return or the fruit of arahantship.’³³

Among the group of monks who practice meditation to purify their minds and wisdom from all defilements, only a system of right practices can lead to the attainment of the supramundane Dhamma. This system is called the “natural law of rightness” or “the certainty of rightness”. On the contrary, the opposite system is called the “natural law of wrongness” or “the certainty of wrongness.”

In Saddhammapakāsinī, a commentary to Paṭisambhidāmagga Scripture, the following evidence was found:

"Goh Cho? Lokutaramako or specialasto palm sotāpattimago. Thena hai magganiyāmena niyatattā 'niyato sambodhiparāyaṇo't

³² Paññāvaggo, Vipassanākathā, Ps.II.236.

³³ Treatise on Insight, - Bhikkhu Ñānamoli (tr.), **The Path of Discrimination (Paṭisambhidāmagga)**, (London: PTS, 1982), p. 401.

vuttaṃ. Taṃ sammattaniyāmaṃ okamichatti pavisissatīti etaṃ aṭṭhānanti atho".³⁴

What is that? It is the supramundane path, specifically the Stream Enterer path. Therefore, *niyato sambhodhiparāyano* was said to have certain enlightenment in the future, because it is certain with the *magganiyāma*, leading to *sammattaniyāma*.

From the above passage, Venerable Mahānāma elaborates *sammattaniyāma* as “a special kind of supramundane path (*lokuttaramaggo*) is the Path of Stream-Entry (*sotāpattimaggo*)”. Moreover, it also encompasses the group of Dhamma factors that come together to promote the attainment of Nibbāna:

Monks have reached the Noble State, namely, the *sammattaniyāma*, which is exquisite with the Dharma Jewel (*dhammaratanavicittaṃ*), namely, the 37 Factors of Enlightenment, beautiful in the beginning, middle, and end, in this way.³⁵

The *Sammattaniyāma* is detailed and includes a cluster of factors that simultaneously come together to promote and support the attainment of the Dhamma holistically. The Vibhaṅga explains it as “the immutable rightness”:

Ye te sattā na kammāvaraṇena samannāgatā na kilesāvaraṇena samannāgatā na vipākāvaraṇena samannāgatā saddhā chandikā paññavanto bhaddā niyāmaṃ okkamituṃ kusalesu dhammesu sammattaṃ³⁶

Those beings who are not furnished with the obstruction of (bad) action, not furnished with the obstruction of corruption, not finished with the obstruction of (bad) resultant, have confidence, have wish (to do good), have wisdom (accompanying rebirth consciousness), are fit

³⁴ PsA.III.698.

³⁵ “*Ādimajjhapariyosānakalyāṇaṃ sattattiṃsabodhipakkhiyadhammaratanavicittaṃ sammattaniyāmasaṅkhātaṃ ariyabhūmiṃ okkanto hotīti.*”, *Maggasaccaniddesaṅṅaṇā* - PsA.I.196.

³⁶ Vbh.341.

to enter into the immutable rightness of good states (i.e., path consciousness).³⁷

To sum up, the term “*sammattaniyāma*”, according to the above presentation, refers to the orderly fixing of things of a certain person (*niyato*) who enters upon the right way or the True Path of Assurance, the certainty of immutable rightness, which is the Noble Path (*ariyamagga*). *Sammattaniyāma* is a special kind of supramundane path (*lokuttaramagga*), namely the Path of Stream-Entry (*sotāpattimagga*), which is exquisite with the Dharma Jewel (*dhammaratanavicittam*), namely the 37 Factors of Enlightenment (*bodhipakkhiyadhamma*). See the following table:

Resource	Definitions
1. Sammatta-Niyāma Sutta A.III.174-175	<ul style="list-style-type: none"> • The right way
2. Paṭisambhidāmagga Ps.II.236.	<ul style="list-style-type: none"> • The certainty of rightness
3. Kathāvatthu Kv.II.480.	<ul style="list-style-type: none"> • The orderly fixing of things of a certain person. • Assured enters upon the True Path of Assurance
4. Saddhammapakāsinī PsA.I.196.	<ul style="list-style-type: none"> • Exquisite with the Dharma Jewel • The 37 Factors of Enlightenment
5. Saddhammapakāsinī PsA.III.698.	<ul style="list-style-type: none"> • A special kind of supramundane path • The Path of Stream-Entry
6. Pañcapakaraṇatṭhakathā KvA.143.	<ul style="list-style-type: none"> • The right assurance of the Noble Path

Table 4.1 Definition of *Sammattaniyāma* from Various Sources

The research team has a view that *Sammattaniyāma* is one of the contexts of *Niyāmas* that is specific to “the result of noble attainment arising from right practice” and that this result is like a system of guarantees of Buddhist outcomes to comfort practitioners of the Noble

³⁷ Paṭhamakyaw Ashin Thiṭṭila (Seṭṭhila) Aggamahāpaṇḍita (tr.), **The Book of Analysis (Vibhaṅga)**, (Oxford: PTS, 1995), p. 448.

Eightfold Path all over the world that they can be confident in “a sustainable system of guarantees of Noble Path, Noble Fruition and Nibbāna”.

Based on all of the abovementioned evidence, the following table illustrates natural laws (*niyāma*) in Tipiṭaka, along with their sources of information:

<i>Niyāma:</i> Inevitability / Certainty				
<i>Dhammaniyāma:</i> The orderly fixing of things ³⁸ The fixed course of the Dhamma ³⁹		<i>Sammattaniyāma:</i> The certainty of rightness		<i>Micchattaniyāma:</i> The certainty of wrongness
<i>Paṭiccasamuppāda:</i> • Dependent Origination	<i>Tilakkhaṇa:</i> • The Three Characteristics	<i>Satattīmsabodhi- pakkhiyadhamma:</i> • The 37 Factors of Enlightenment	<i>Ariyamagga:</i> • The right assurance of the Noble Path	<i>Anantariyakamma</i> • The five immediacy-deeds • The wrong assurance

Table 4.2 The Natural Laws (*Niyāma*) in Tipiṭaka

From the studies of natural laws (*niyāma*) in Tipiṭaka, the Pali term “*niyāma*” refers to inevitability or certainty. The most common concept is “*dhammaniyāma*”, a Pali term meaning the orderly fixing of things, or the fixed course of the Dhamma (*dhammaniyāmatā*), which is a synonym for the term the stableness of the Dhamma, or causal law of nature (*dhammatṭhitatā*). In addition, “*niyāma*” can also be found in other contexts that refer to the certainty of goodness, the natural law of the certainty of the Noble Fruits (*sammattaniyāma*). *Niyāma* exists in the following three contexts: (1) *Niyāma* in the context of *dhammaniyāma*, namely, Dependent Origination, is the most important principle of Buddhism that guides the wisdom of people to understand the natural law of all things that depend on each other to come into being. Nothing can stand on its own without relying on the others. The Buddha uses this natural law to describe “Dependent Origination”. Therefore, *Niyāma*, in this

³⁸ The original phrase “this orderly fixing of things” was used by F.L. Woodward, the translator of The Book of the Gradual Sayings (Anguttara-Nikāya).

³⁹ The original phrase “The fixed course of the Dhamma” was used by Bhikkhu Bodhi, the translator of The Connected Discourses of the Buddha: A New Translation of the Saṃyutta Nikāya.

context, is a great and profound Dhamma principle. A principle that if anyone truly understands, they will be able to untie the knot that the Buddha compared to a tangled ball of string; (2) *Niyāma* in the context of *dhammaniyāma*, namely, the three characteristics, which are characteristics that appear universally. These characteristics are of utmost importance in many contexts, namely, it is a principle that teaches human beings to understand the law of nature that all things are composed of these three universal characteristics. It teaches human beings to understand the non-existence of impermanence, the existence of suffering, and the non-existence of the self, etc., and (3) *Niyāma* in the context of *sammattaniyāma* is truly the concept of the natural law that encourages practitioners to continue on their right path without discouragement. In addition, it is a natural law that confirms the existence of a system of Dhamma practice, especially the “Right Noble Path that arises from the right practice.”

To make the picture clearer, after drawing the *Niyāma* according to the sources found in the Tipiṭaka, the following chart shows *Niyāma* that appear in the Tipiṭaka:

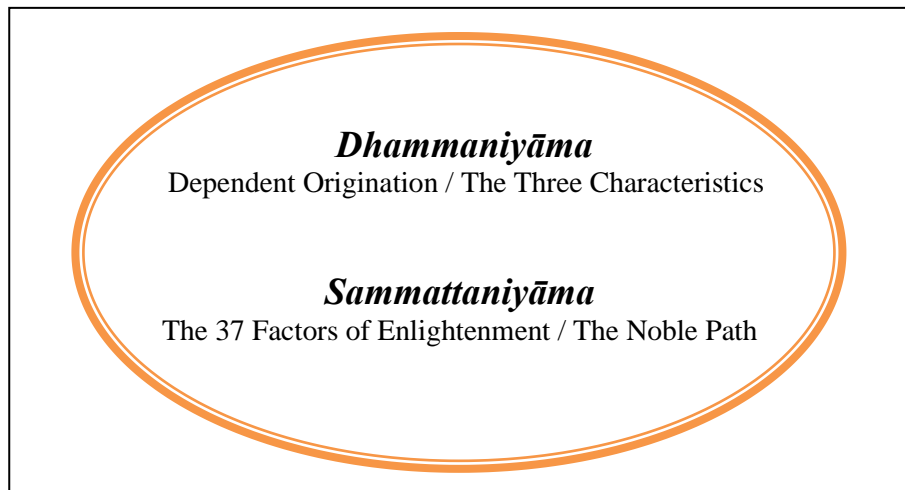


Chart 4.1 *Niyāma* as Appeared in the Tipiṭaka

4.1.2 Natural Laws (*Niyāma*) in Commentaries

The concept of natural laws that appear in the commentarial works is classified into five types based on their characteristics. They

appear in two main commentary texts, the Suttanta Piṭaka Commentary and the Abhidhamma Piṭaka Commentary. This research will be presented in order according to the said texts: 1) Natural Laws in Suttanta Piṭaka Aṭṭhakathā, 2) Natural Laws in Abhidhamma Piṭaka Aṭṭhakathā, and 3) Natural Law in Other Suttas' Aṭṭhakathā, as follows:

1. Natural Laws in Suttanta Piṭaka Aṭṭhakathā⁴⁰

In the Sumaṅgalavilāsinī (Dīghanikāya Aṭṭhakathā), an exegetical work on the Mahāpadāna Sutta, Buddhaghosācāriya has classified the Natural Laws into five different categories in detail: - 1) Moral Certainty (*Kamma-Niyāma*), 2) Caloric Certainty (*Utu-Niyāma*), 3) Germinal Certainty (*Bīja-Niyāma*), 4) Psychological Certainty (*Citta-Niyāma*), and 5) Natural-phenomenal Certainty (*Dhamma-Niyāma*).⁴¹

1) Moral Certainty (*Kamma-Niyāma*)

Moral certainty implies the certainty, or the law, of action. It is one of the most fundamental principles of Buddhism that pertains to human actions and their consequences. The commentators explain, “*Tattha kusalassa iṭṭhavipākādānaṃ, akusalassa aniṭṭhavipākādānanti ayam kamma-niyāmo.*”⁴² which is translated as “the production of desirable good deeds and the production of undesirable evil deeds, is *Kamma-Niyāma*.” Buddhaghosācāriya has given an interesting example:

*Apica ekā kira itthī sāmikena saddhiṃ bhaṇḍitvā ubbandhitvā maritukāmā rajjupāse gīvaṃ pavesesi. Aññataro puriso vāsīm nisedento taṃ itthikammaṃ disvā. Rajjuṃ chinditukāmo “mā bhāyi mā bhāyi” ti taṃ samassāsento upadhāvi. Rajju āsīviso hutvā aṭṭhāsi. So bhīto hutvā palāyi.*⁴³

For example, a woman quarreled with her husband and wanted to hang herself, so she put her neck into a rope loop. A man was sharpening a knife, saw the woman, and wanted to cut the rope. He ran to comfort her, saying, “Don’t be afraid, sister. Don’t be afraid.” The

⁴⁰ DA. II.432; Sumaṅgalavilāsinī (Dīghanikāya Aṭṭhakathā).

⁴¹ “*Niyāmo ca nāmesa kammaniyaṃ utuniyaṃ bījaniyaṃ cittaniyaṃ dhammaniyaṃ pañcavidho*” Mahāpadāna-Sutta-Vaṇṇanā- DA. II.432.

⁴² DA.II.432.

⁴³ DA.II.432.

rope turned into a venomous snake and strangled the woman. The man was scared and ran away. The woman died right there.

From this example, it can be seen that when the woman intended to hang herself, due to the power of defilement (*kilesa*), she then determined her action by hanging herself (*kamma*), which ultimately resulted in her death (*vipāka*). It can be written as an example chart as follows:

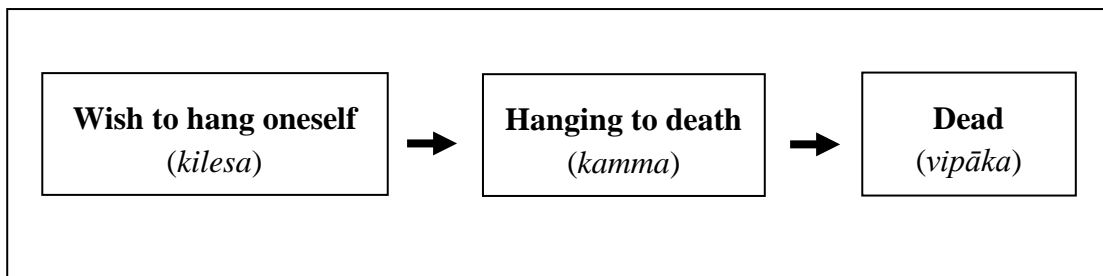


Chart 4.2 Moral Certainty (*Kamma-Niyāma*)

This example most clearly reflects the principle of “certainty of action”. In Lonaphala Sutta: A Grain of Salt, the Buddha said,

*yo ca kho bhikkhave evaṃ vadeyya yathā yathā vedanīyaṃ ayaṃ puriso kammaṃ karoti tathā tathāssa vipākaṃ paṭisaṃvediyatīti evaṃ santaṃ bhikkhave brahmacariyavāso hoti okāso paññāyati sammā dukkhassa antakiriyāyāti.*⁴⁴

But, monks, if one should say: “Exactly according as a man does a deed that can be experienced (hereafter), exactly in such manner does he experience the fruition thereof,” - that being so there is living of the holy life: there is opportunity afforded for the utter ending of Ill.⁴⁵

It clearly shows that the belief in action is a crucial factor in driving him to live a life of good conduct and practice, which will enable him to escape suffering completely. When this is the case, it can be said that he is truly living under the practice of the Threefold Training. Therefore, the giving of results of certainty in nature that is directly related to humans is an indication of the certainty of the giving of results of human

⁴⁴ A.I.252.

⁴⁵ F. L. Woodward (tr.), **The Book of the Gradual Sayings (Anguttara-Nikāya)**, Vol. I (Ones, Twos, Threes), London: PTS, 1979), p. 230.

actions in the sense that humans themselves, not others, determine their destiny. It is also a good example of the scope of the five definitions under the framework of *kamma-niyāma*. The explanations concerning the principle of *kamma-niyāma* in this commentarial level are very detailed, which is consistent with the explanations in the Visuddhimagga and Abhidhammatthasaṅgaha Pakaraṇa.

In Manorathapūranī, the Commentary on the Aṅguttara-Nikāya, Buddhaghosa mentions the 11⁴⁶ and 12 types⁴⁷ of action according to the Suttantika Pariyāya:

*Suttantikapariyāyena hi ekādasā kammāni vibhattāni. Seyyathīdam?
 diṭṭhadhammavedanīyaṃ upapajjavedanīyaṃ
 aparapariyāyavedanīyaṃ, yaṃ garukaṃ yaṃ bahulaṃ yadāsannaṃ
 kaṭattā vā pana kammaṃ, janakaṃ upatthambhakaṃ upapīlakaṃ
 upaghātakanti.*⁴⁸

By implication in the Sutta (*Suttantikapariyāyena*), the Buddha has classified action into 11 types as follows:

- (1) Immediately Effective Action (*Diṭṭhadhammavedanīya kamma*),
- (2) Subsequently Effective Action (*Upapajjavedanīya kamma*),
- (3) Indefinitely Effective Action (*Aparapariyāyavedanīya kamma*),
- (4) Weighty Action (*Garuka kamma*),
- (5) Habitual Action (*Bahula kamma*),
- (6) Death-proximate Action (*Yadāsanna kamma*),
- (7) Reserve Action (*Kaṭattāvāpanakamma*),
- (8) Productive Action (*Janaka kamma*),
- (9) Supportive Action (*Upatthambhaka kamma*),

⁴⁶ In the 11 types of action, defunct action (*ahosi-kamma*) is not included.

⁴⁷ The 12 types of action count as ‘Defunct action (*ahosi-kamma*)’ in the 4th rank, after ‘Indefinitely Effective Action (*Aparapariyāyavedanīya kamma*)’.

⁴⁸ AA.II.210.

(10) Obstructive Action (*Upapīlaka kamma*), and

(11) Destructive Action (*Upaghātaka kamma*).⁴⁹

The explanation in *Manorathapūranī* shows that there are another 16 types of action according to the *Abhidhamma Pariyāya*, which explains certain actions that, when undertaken badly or well, are prohibited and depend on the two factors, namely: (1) wealth (*sampatti*), and (2) disaster (*vipatti*) to not produce results or produce results in the following four aspects: (1) destination (*gati*), (2) appearance (*upadhi*), (3) time (*kāla*), (4) endeavor (*payoga*):

*Abhidhammapariyāyena ca soḷasa kammāni vibhattāni, seyyathīdam: - “atthekaccāni pāpakāni kammamādānāni gatisampattiṃ paṭibāḷhāni na vipaccanti, atthekaccāni pāpakāni kammamādānāni upadhisampattiṃ paṭibāḷhāni na vipaccanti, atthekaccāni pāpakāni kammamādānāni kālasampattiṃ paṭibāḷhāni na vipaccanti, atthekaccāni pāpakāni kammamādānāni payogasampattiṃ paṭibāḷhāni na vipaccanti. Atthekaccāni pāpakāni kammamādānāni gativipattiṃ āgamma vipaccanti, upadhivipattiṃ, kālavipattiṃ payogavipattiṃ āgamma vipaccanti. Atthekaccāni kalyāṇāni kammamādānāni gativipattiṃ paṭibāḷhāni na vipaccanti, upadhivipattiṃ, kālavipattiṃ, payogavipattiṃ paṭibāḷhāni na vipaccanti. Atthekaccāni kalyāṇāni kammamādānāni gatisampattiṃ āgamma vipaccanti, upadhisampattiṃ, kālasampattiṃ, payogasampattiṃ āgamma vipaccantī” ti.*⁵⁰

The complexity of the moral certainty in Buddhism, as evident in these commentaries, confirms that nature has mysterious aspects and dimensions hidden beneath the natural source codes that await human exploration to reach that point eventually. The foundation of the action system here is nothing but wealth (*sampatti*) and disaster (*vipatti*), which create a profound dimension, giving rise to 16 different types of moral systems, as shown in the following table:

⁴⁹ AA.II.210.

⁵⁰ AA.II.210.

	Pali	The Sixteen Types of Action
1.	<i>Atthekaccāni pāpakāni kammasamādānāni gatisampattiṃ paṭibāḷhāni na vipaccanti,</i>	Certain bad actions that prevent the right destination are unfruitful
2.	<i>Atthekaccāni pāpakāni kammasamādānāni upadhisampattiṃ paṭibāḷhāni na vipaccanti,</i>	Certain bad actions that prevent the right appearance are unfruitful
3.	<i>Atthekaccāni pāpakāni kammasamādānāni kālasampattiṃ paṭibāḷhāni na vipaccanti,</i>	Certain bad actions that prevent the right time are unfruitful
4.	<i>Atthekaccāni pāpakāni kammasamādānāni payogasampattiṃ paṭibāḷhāni na vipaccanti.</i>	Certain bad actions prevent the right endeavor are unfruitful
5.	<i>Atthekaccāni pāpakāni kammasamādānāni gativipattiṃ āgamma vipaccanti,</i>	Certain bad actions, relying on the wrong destination, are fruitful
6.	<i>Atthekaccāni pāpakāni kammasamādānāni upadhivipattiṃ āgamma vipaccanti</i>	Certain bad actions, relying on the wrong appearance, are fruitful
7.	<i>Atthekaccāni pāpakāni kammasamādānāni kālavipattiṃ āgamma vipaccanti</i>	Certain bad actions, relying on the wrong time, are fruitful
8.	<i>Atthekaccāni pāpakāni kammasamādānāni payogavipattiṃ āgamma vipaccanti.</i>	Certain bad actions, relying on the wrong endeavor, are fruitful
9.	<i>Atthekaccāni kalyāṇāni kammasamādānāni gativipattiṃ paṭibāḷhāni na vipaccanti,</i>	Certain good actions that prevent the wrong destination are unfruitful
10.	<i>Atthekaccāni kalyāṇāni kammasamādānāni upadhivipattiṃ paṭibāḷhāni na vipaccanti,</i>	Certain good actions that prevent the wrong appearance are unfruitful
11.	<i>Atthekaccāni kalyāṇāni kammasamādānāni kālavipattiṃ paṭibāḷhāni na vipaccanti,</i>	Certain good actions that prevent the wrong time are unfruitful
12.	<i>Atthekaccāni kalyāṇāni kammasamādānāni payogavipattiṃ paṭibāḷhāni na vipaccanti.</i>	Certain good actions prevent the wrong endeavor are unfruitful
13.	<i>Atthekaccāni kalyāṇāni kammasamādānāni gatisampattiṃ āgamma vipaccanti,</i>	Certain good actions, relying on the right destination, are fruitful
14.	<i>Atthekaccāni kalyāṇāni kammasamādānāni upadhisampattiṃ āgamma vipaccanti,</i>	Certain good actions, relying on the right appearance, are fruitful
15.	<i>Atthekaccāni kalyāṇāni kammasamādānāni kālasampattiṃ āgamma vipaccanti,</i>	Certain good actions, relying on the right time, are fruitful
16.	<i>Atthekaccāni kalyāṇāni kammasamādānāni payogasampattiṃ āgamma vipaccanti.</i>	Certain good actions, relying on the right endeavor, are fruitful

Table 4.3 The Abhidhamma *Pariyāya*'s Sixteen Types of Action

No matter how many types of action are divided in detail, whether it is 11 types, 12 types, or 16 types, etc., the main principle of the moral certainty or so-called “law of *kamma*” is only a clear indication for us to see the delicacy of actions and their results. This serves as a reminder for humans to strive to do good deeds and avoid evil ones. In short, a person is responsible for the results of their actions.

2) Caloric Certainty (*Utu-Niyāma*)

Caloric certainty denotes the certainty, or the law, of the season. One of the Buddhist rules concerns the external physical characteristics of the natural environment. The commentator gives an example:

*Tesu tesu janapadesu tasmim̐ tasmim̐ kāle ekappahāreneva rukkhānaṃ pupphaphalaggahaṇādīni, vātassa vāyanaṃ avāyanaṃ, ātapassa tikkhataṃ mandatā, devassa vassanaṃ avassanaṃ, padumānaṃ divā vikaṣanaṃ rattim̐ sammilananti evamādi utu-niyāmo.*⁵¹

In a particular countryside, at a particular time, the collection of flowers and fruits from trees, cutting them only once, the wind blows and the wind does not blow, the sun is strong and the sun is weak, the rain falls and the rain does not fall, the lotus blooms during the day and closes at night, and so on, is *Utu-Niyāma*.

From the above passage, *Utu-Niyāma* means the certainty of the calorie or seasons. The commentator has elaborated the certainty of nature through the perspective of seasonal phenomena, such as the phenomena of time, the flowering and fruiting of flowers, the blowing of wind, the strength or weakness of sunlight from the sun, the falling of rain, etc. This description certainly extends to the “physical hot-cold temperatures and seasonal changes” of the Earth and the universe, which is consistent with its name, “*utu*,” which means “season.”

3) Germinal Certainty (*Bīja-Niyāma*)

Germinal certainty denotes the certainty, or the law, of the plants. *Bīja-Niyāma*, one of the rules in Buddhism, concerns the physical appearance of crops such as wheat, vegetables, and fruits. It reflects the transmission of genetic characteristics of various plant species in nature from one generation to the next, from ancestors to descendants. All living things in the universe, whether human beings or animals, with different life forms, are subject to this certainty in terms of their distinct evolutionary paths according to their species. The evolutionary patterns of one’s ancestors reflect this pattern of certainty.

⁵¹ DA.II.432.

In the *Sumaṅgalavilāsinī* (*Dīghanikāya Aṭṭhakathā*), Buddhaghosācāriya mentioned, “*Yaṃ panetaṃ sālibījato sāliphalameva, madhurato madhurarasamyeva, tittato tittarasamyeva phalaṃ hoti, ayaṃ bīja-niyāmo.*”⁵² “Wheat is the fruit that comes only from wheat; sweetness is the fruit of nectar; bitterness is the fruit of bitter plants, is *Bīja-Niyāma.*”

From the above statement, *bīja-Niyāma* means the certainty of plants in the sense that the nature of plants and grains all have genetic characteristics that are passed on to their offspring. As true as the Buddha said about the five kinds of plants in *Bīja Sutta* of *Saṃyutta Nikāya*, “*Pañcimāni bhikkhave bījajātāni. Katamāni pañca. mūlabījaṃ khandhabījaṃ phalabījaṃ aggabījaṃ bījabījaññeva pañcamam.*”⁵³ Which can be translated as, “Bhikkhus, there are these five kinds of seeds. What five? Root-seeds (*mūlabīja*), stem-seeds (*khandhabīja*), joint-seeds (*phalabīja*), cutting-seeds (*aggabīja*), and germ-seeds (*bījabīja*) as the fifth.”⁵⁴ Any plant in the five categories mentioned above depends on soil for its growth; therefore, soil is an essential food for plants. The Buddha compared the earth to the Noble Eightfold Path:

*bhikkhave ye kecime bījagāmahūtagāmā vuddhiṃ virūhiṃ vepullaṃ āpajjanti sabbe te paṭhaviṃ nissāya paṭhaviyaṃ patitṭhāya evamete bījagāmahūtagāmā vuddhiṃ virūhiṃ vepullaṃ āpajjanti. evameva kho bhikkhave bhikkhu sīlaṃ nissāya sīle patitṭhāya ariyaṃ aṭṭhaṅgikaṃ maggaṃ bhāvento ariyaṃ aṭṭhaṅgikammaggaṃ bahulīkaronto vuddhiṃ virūhiṃ vepullaṃ pāpuṇāti dhammesu.*⁵⁵

Bhikkhu, just as whatever kinds of seed and plant life attain to growth, increase, and expansion, all do so based upon the earth, established upon the earth, so too, based upon virtue, established upon virtue, a bhikkhu develops and cultivates the Noble Eightfold Path, and

⁵² DA.II.432.

⁵³ S.V.54.

⁵⁴ Bhikkhu Bodhi (tr.), *The Connected Discourses of the Buddha A New Translation of the Saṃyutta Nikāya*, Vol. I. 2 vols. set. (Oxford: PTS, 2000), p. 891.

⁵⁵ S.V.46.

thereby he attains to growth, increase, and expansion in [wholesome] states.⁵⁶

All seed and plant life, just as all sentient beings in this world depend on food for their growth, so too monks rely on morality (*sīlam nissāya*) as their foundation and life food to develop the Noble Eightfold Path, and thus reach greater growth and prosperity. All kinds of seed and plant life existing in the world fall under the germinal certainty in this way. This is an evolutionary pattern of genetic inheritance. This pattern has been passed down through history for generations and will continue to be so in the future. Although the phenomenon of “mutation” may occur during these processes, it can also be understood subject to this law.

4) **Psychical Certainty (*Citta-Niyāma*)**

Psychical certainty refers to the certainty, or the law, of consciousness. One of the most significant rules that Buddhism places great importance on.

*Purimā purimā cittacetāsikā dhammā pacchimānaṃ pacchimānaṃ cittacetāsikānaṃ dhammānaṃ upanissayapaccayena paccayoti evaṃ yadetāṃ cakkhuvīññāṇādīnaṃ anantarā sampañicchannādīnaṃ nibbattanaṃ, ayaṃ citta-niyāmo.*⁵⁷

The previous consciousness and mental factors are factors of Dhamma by relying (*upanissaya paccaya*) on the later consciousness and mental factors. Therefore, the arising of receiving an object of consciousness (*sampañicchanna citta*), etc., in the sequence of eye-consciousness, etc., is *Citta-Niyāma*.

Citta-Niyāma means the certainty of the mind. Evidence from the Visuddhimagga and Abhidhammatthasaṅgaha shows the certainty of the mind, which is an iron law regarding the different functions of all fourteen types of consciousness as follows:

⁵⁶ Bhikkhu Bodhi (tr.), **The Connected Discourses of the Buddha A New Translation of the Saṃyutta Nikāya**, Vol. II. 2 Vols. set. (Oxford: PTS, 2000), p. 1553.

⁵⁷ DA.II.432.

1. Rebirth-linking (*Paṭisandhi*)
2. Life-continuum (*Bhavaṅga*)
3. Adverting (*Āvajjana*)
4. Seeing (*Dassana*)
5. Hearing (*Savana*)
6. Smelling (*Ghāyana*)
7. Tasting (*Sāyana*)
8. Touching (*Phusana*)
9. Receiving (*Sampaṭicchana*)
10. Investigating (*Santīraṇa*)
11. Determining (*Voṭṭhapana*)
12. Impulsion (*Javana*)
13. Registration (*Tadālbhāna*)
14. Death (*Cuti*)⁵⁸

These fourteen types of mental functions are recognized as the 14 modes of occurrence of consciousness (*viññāṇapavatti*) or (*viññāṇapavatti ākāra*).⁵⁹ From the functioning of the first type of consciousness, which is rebirth-linking, to the last functioning type of consciousness, which is death, Buddhaghosa elaborated them as follows:

1. The occurrence of nineteen kinds of resultant consciousness should be understood as rebirth-linking (*Paṭisandhi*).
2. The occurrence of those same [nineteen kinds of] consciousness should be understood as life-continuum (*Bhavaṅga*).
3. The occurrence of two kinds of functional consciousness should be understood as adverting (*āvajjana*).

⁵⁸ Vism.458-460; Comp.114; Bhadantacariya Buddhaghosa, **The Path of Purification (Visuddhimagga)**, Tr. By Bhikkhu Ñāṇamoli, 4th Ed., (Kandy: Buddhist Publication Society, 2010), pp. 463-466.

⁵⁹ Vism.457; Comp.114.

4. The occurrence of ten kinds of resultant consciousness should be understood as seeing (*dassana*).

5. The occurrence of ten kinds of resultant consciousness should be understood as hearing (*savana*).

6. The occurrence of ten kinds of resultant consciousness should be understood as smelling (*ghāyana*).

7. The occurrence of ten kinds of resultant consciousness should be understood as tasting (*sāyana*).

8. The occurrence of ten kinds of resultant consciousness should be understood as touching (*phusana*).

9. The occurrence of two kinds of resultant consciousness should be understood as receiving (*sampaṭicchana*).

10. The occurrence of three kinds of resultant consciousness should be understood as investigating (*santīraṇa*).

11. The occurrence of one kind of resultant consciousness should be understood as determining (*voṭṭhapana*).

12. The occurrence of fifty-five kinds of profitable, unprofitable, functional, and resultant consciousness should be understood as impulsion (*javana*).

13. The occurrence of eleven kinds of resultant consciousness should be understood as registration (*tadālabhāna*).

14. The occurrence of nineteen kinds of resultant consciousness should be understood as death (*cuti*).⁶⁰

The certainty of mind or *Citta-Niyāma* is the unchanging nature of consciousness (*citta*) and concomitants (*cetasika*) in terms of the mutual causal relationship between *cittas* and *cetasikas*. It also refers to the relationship between different types of mental functions. For instance, the receiving consciousness (*sampaṭicchana citta*) occurs in close relationship with the mental functions of seeing (*dassana*), hearing (*savana*), smelling

⁶⁰ Vism.458-460; Comp.114; Bhadantacariya Buddhaghosa, **The Path of Purification (Visuddhimagga)**, Tr. By Bhikkhu Ñāṇamoli, 4th Ed., (Kandy: Buddhist Publication Society, 2010), pp. 463-466.

(*ghāyana*), tasting (*sāyana*), and touching (*phusana*). This certainty of consciousness reflects the non-delusional nature to reach the ultimate level of the objective nature. It influences how individuals perceive and interpret the non-physical subjective reality around them.

5) Natural-phenomenal Certainty (*Dhamma-Niyāma*)

Natural-phenomenal certainty refers to the certainty, or the law, of the whole of nature. It is the most important rule of Buddhism, which is the most detailed and profound of all the rules.

"*Yā panesā bodhisattānaṃ mātukucchiṃ okkamanādīsū dasasahasilokadhātukampanādīnaṃ pavatti, ayaṃ dhamma-niyāmo nāma.*"⁶¹

Dhamma-Niyāma denotes the certainty of Dhamma. The commentator explains in detail that it means "The arising of the trembling of the ten thousand worlds when the Bodhisattvas descended into the womb of their mothers is *Dhamma-Niyāma*."⁶² The explanation of *Dhamma-Niyāma* in this manner is considered very outstanding because it explains supernatural-seeming phenomena. It requires faith for it to seem reasonable and understandable to some extent.

Significantly, natural law is not only found in the various commentaries as mentioned above. They are also found in other commentaries to the Suttas. The evidence showing traces of *niyāma* appears in the *Dīgha Nikāya*, *Sīlakkhandhavagga-aṭṭhakathā*, which widely discusses the meaning, "*Dhammatṭhitatanti navalokuttaradhammesu ṭhitasabhāvaṃ. Dhammaniyāmatanti lokuttaradhammaniyāmaniyataṃ.*"⁶³ "*Dhammatṭhitataṃ* means the state of being in the nine supramundane *Dhamma*. *Dhammaniyāmataṃ* means the certainty and correctness according to the path of the supramundane *Dhamma*." This means that *niyāma* is a definite law of a state of things that truly exist and are unavoidable. It may be called natural law, a definite law of the supramundane Dhamma." In *Paramatthadīpanī*, Ven. Dhammapāla further explains: "*Niyatoti dhammaniyāmena sammattaniyāmena*

⁶¹ DA.II.432.

⁶² DA.II.432.

⁶³ Poṭṭhapādasutta, Poṭṭhapādaparibbājakavatthuvaṇṇanā - DA.I.378.

niyato.”⁶⁴ “*Niyato* means certain by natural law, that is, by certain determination.” It can be analyzed that all the explanations about “*niyāma*” in the commentary level are in the same direction, which is the word “certainty” as we have often seen in the commentarial works. It is the certainty or law of nature that does not depend on the feelings and thoughts of human beings.

Moreover, in the Commentary to the Majjhimanikāya, Mūlapaṇṇāsa, the explanation of Natural-phenomenal certainty is found on “*nibbija pakkamiṃsu*” as follows:

*Nibbija pakkamiṃsū ti ukkaṇṭhitvā dhammaniyāmen’ eva pakkantā. Bodhisattassa sambodhiṃ pattakāle kāyavivekassa okāsadānattham dhammatāya gatā. Gacchantā ca aññattha agantvā Bārāṇasim eva agamaṃsu. Bodhisatto tesu gatesu aḍḍhamāsaṃ kāyavivekaṃ labhitvā Bodhimande aparājitapallaṅkena nisīditvā sabbaññutañāṇaṃ paṭivijjhi.*⁶⁵

“*nibbija pakkamiṃsu*” implies that the Bhikkhus of the group of five [*Pañcavaggiyā*] were weary and left according to the natural-phenomenal certainty. It is explained that they went according to the law to give the Bodhisatta an opportunity to have bodily seclusion when he attained enlightenment, and when they went, they did not go anywhere else but the city of Benares. When the Bhikkhus of the group of five left, the Bodhisatta had bodily seclusion for half a month, sat on the Throne of Victory in the Bodhimandala, and had penetrated omniscience

The abovementioned implication is considered strange and different from all the evidence that has been discussed. Based on the fivefold certainties of the commentary, it should be more in line with the moral certainty, which is the certainty of action, dealing with the human’s action and its result.

Therefore, the concepts on certainties in the Suttanta Piṭaka Commentary emphasize the explanation of the five types of certainties

⁶⁴ Udānaṭṭhakathā, Suppabuddhakuṭṭhisuttavaṇṇanā - UdA.290.

⁶⁵ Mahāsaccakasuttavaṇṇanā, MA.II.291.

through various events, both those that occur regularly in daily life and those that are supernatural phenomena, such as explaining the *utu-niyāma* as the certainty of the seasons, the earth, the sky, the air, the wind, the sun, and the rain, including the certainty of the blooming and closing of flowers. The explanation of the *bīja-niyāma* as the certainty of plants, emphasizing the giving of results, that is, which plants give results of that kind of plant, similar to their tastes. Sweet tastes are the result of nectar, and bitter tastes are the result of bitter plants. The explanation of the *citta-niyāma* as the certainty of the consciousness, emphasizing the factors of the consciousness and its concomitants. The explanation of the *kamma-niyāma* as the certainty of action, emphasizing the giving of results, that is, both wholesome and unwholesome. And the explanation of the *dhamma-niyāma* as the certainty of dhamma, emphasizing the phenomenal characteristics that are beyond nature, such as the trembling of the ten thousand worlds when the Bodhisattvas descended into the womb of their mothers.

One thing to note here is that the certainties, according to the commentarial context, namely, moral certainty (*kamma-niyāma*), caloric certainty (*utu-niyāma*), germinal certainty (*bīja-niyāma*), psychical certainty (*citta-niyāma*), and natural-phenomenal certainty (*dhamma-niyāma*), can all be explained using the principle of dependent origination or *Dhamma-niyāma* in the Tipiṭaka as exposed by the Buddha.

2. Natural Laws in Abhidhamma Piṭaka Aṭṭhakathā⁶⁶

Since the Expositor (Atthasālinī), the commentary to the Dhammasaṅgaṇī, the first book of the Abhidhamma Piṭaka, is an important scripture in the commentary level that elaborates the Abhidhamma Piṭaka, the explanation of the laws of nature in this scripture is especially detailed. Plus, the examples of natural events and phenomena are given to support the explanations. They are stated about the fivefold order of the cosmos, or the ‘fivefold cosmic order’.⁶⁷ The order of each definition differs slightly

⁶⁶ DhsA.272; Buddhaghosa, **The Expositor (Atthasālinī)**, Vol. II., tr. Maung Tin, (London: The Oxford University Press, 1921), pp. 360-362.

⁶⁷ “*Niyāmakakathā*” - DhsA.285; “fivefold cosmic order” - Buddhaghosa, **The Expositor (Atthasālinī)**, Vol. II., 2 Vols. Set, tr. Maung Tin, (London: The Oxford University Press, 1921), p. 374.

from the commentary to the Suttanta Piṭaka, as already mentioned, respectively, as follows: 1) Germinal Order (*Bīja-Niyāma*), 2) Caloric Order (*Utu-Niyāma*), 3) Moral Order (*Kamma-Niyāma*), 4) Natural-phenomenal Order (*Dhamma-Niyāma*), 5) Psychological Order (*Citta-Niyāma*).⁶⁸

1) Germinal Certainty (*Bīja-Niyāma*):

It is undeniable that the human population not only consumes meat as food, but also consumes plants and vegetables. Plants and vegetables have their seeds of life, just like humans do. This principle of the seeds of life itself is a small starting point for humans to learn about nature through the life cycle of plants, as the efforts of Venerable Buddhaghosa have given:

Of these, the Germinal certainty [reveals] a giving of this and that similar modes of fruition to this or that seed, as in the gram's top shoots sprouting to the north, the southern creeper growing round a tree from the right, the sunflower's facing the sun, the Maluva creeper growing towards a tree, the holes occurring in the top of the cocoanut.⁶⁹

Bīja-Niyāma is directly related to the fruiting patterns of plants, as the term "modes of fruition" was used, which is observed in the flowering and fruiting of plants in nature. In germinal certainty, there is no single cause for the fruitions but only multiple fruits from multiple causes. Therefore, fruits are called a shoot having visible form, smell, taste, etc. arise from multiple causes, such as temperature, earth, seed, and moisture, etc., as in the following paragraph:

For here there is no single nor multiple fruit of any kind from a single cause, nor is there a single [fruit] from multiple causes, but only multiple [fruit] from multiple causes. Thus from the multiple causes, called temperature, earth, seed and moisture, fruit called a shoot having visible form, smell, taste, etc. is found to arise.⁷⁰

⁶⁸ “*Imasmiṃ pana ṭhāne pañcavidhaniyāmaṃ nāma gaṇhiṃsu bījanīyāmaṃ utunīyāmaṃ kammanīyāmaṃ dhammanīyāmaṃ cittanīyāmaṃ ti.*” - DhsA.272

⁶⁹ DhsA.272: Ibid., p. 360.

⁷⁰ VbhA.147; Bhikkhu Ñāṇamoli (tr.), **The Dispeller of Delusion (Sammohavinodanī)**, Part I, (Oxford: PTS, 1996), p. 181.

It would seem that the nature of these living things called plants is not very important. These living things appear to human perception and awareness very faintly. For this reason, the commentator explains *bīja-niyāma* by relating the growing processes of plants to the perception of the observer. Only one who sees the nature of plants as they are can truly understand the secret of their true nature, without distortion, with the eye of wisdom. Therefore, intelligent observation is something that humans should do of the environment around them.

Just like a seed's reaching the state of a tree through the state of the shoot and so on, is called the "method of identity". One who sees this rightly abandons the annihilation view by comprehending the unbrokenness of the continuity which occurs due to the linking of cause with fruit.⁷¹

This secret of nature is a unique plant characteristic that the commentator calls "method of identity," which is not only plants but also in animals, nature, and the environment, but it is different according to their seeds. And when the eye of Dhamma arises, a person will transcend beyond the ordinary individual to become a Noble individual. The first Ariya person is *ekabījī sotāpanna* (*eka* = single; *bījī* = seed; *sotāpanna* = stream enterer), "One with a single seed (*ekabījīn*),⁷² a person whose name is similar to *bīja-niyāma*, meaning a stream enterer who still has a seed left to bring him back to be born once more.

2) Caloric Certainty (*Utu-Niyāma*):

In The Dispeller of Delusion (Sammohavinodanī), the following terms, like "climate"⁷³ "season"⁷⁴ "temperature",⁷⁵ etc. were used in translation from the Pāli "*utu*". Here, caloric certainty should cover all

⁷¹ VbhA.198; Bhikkhu Ñāṇamoli (tr.), **The Dispeller of Delusion (Sammohavinodanī)**, Part I, (Oxford: PTS, 1996), p. 242.

⁷² VbhA.430; Bhikkhu Ñāṇamoli (tr.), **The Dispeller of Delusion (Sammohavinodanī)**, Part II, (Oxford: PTS, 1996), p. 178.

⁷³ Bhikkhu Ñāṇamoli (tr.), **The Dispeller of Delusion (Sammohavinodanī)**, Part II, (Oxford: PTS, 1996), pp. 307, 364.

⁷⁴ Bhikkhu Ñāṇamoli (tr.), **The Dispeller of Delusion (Sammohavinodanī)**, Part II, (Oxford: PTS, 1996), pp. 342, 364.

⁷⁵ VbhA.8, 24, 70; Bhikkhu Ñāṇamoli (tr.), **The Dispeller of Delusion (Sammohavinodanī)**, Part I, (Oxford: PTS, 1996), pp. 7, 27, 82.

natural phenomena related to climate change, changing seasons, fluctuating hot-cold temperatures, as well as calories, etc. The text that appears in the Visuddhimagga shows its definition: “*Tattha utu nāma catusamuṭṭhānā tejodhātu, uṇha-utu-sīta-utūti evaṃ pan’ esa duvidho hoti.*”⁷⁶ Which can be translated as, “Temperature is the fire element of fourfold origination; but it is twofold as hot temperature and cold temperature.”⁷⁷ In this context, *utu-niyāma* could also be translated as “certainty of temperature”.

Although the explanation of *utu-niyāma* is not found in much of this Atthasālinī scripture, Buddhaghosa somehow leaves some of its characteristics as follows: “The caloric certainty is the simultaneous blossoming, fructifying and sprouting of such and such trees at such and such seasons.”⁷⁸ Unlike the germinal certainty, the explanation of caloric certainty does not focus on the genetic transmission of plants, but rather on the phenomena of flowering, fruiting, and the simultaneous emergence of leaves in different seasons. In short, this specific certainty focuses on the “different seasons” that have different effects on natural plants.”

3) Moral Certainty (*Kamma-Niyāma*):

The certainty of action, according to the context of the commentary, is about “actions and their results”. The giving of suitable results by various actions is emphasized:

Thrice-conditioned *kamma* gives thrice-conditioned, twice-conditioned, unconditioned result; twice-conditioned *kamma* gives twice-conditioned, unconditioned result, not thrice-conditioned result - this giving of suitable results by various *kammās* is the Moral Order.⁷⁹

⁷⁶ Vism.616.

⁷⁷ Bhadantacariya Buddhaghosa, **The Path of Purification (Visuddhimagga)**, Tr. By Bhikkhu Ñāṇamoli, 4th Ed., (Kandy: Buddhist Publication Society, 2010), p. 643.

⁷⁸ DhsA.272; Buddhaghosa, **The Expositor (Atthasālinī)**, Vol. II., tr. Maung Tin, (London: The Oxford University Press, 1921), p. 360.

⁷⁹ DhsA.273; Ibid., pp. 360-361.

The commentator also gives examples of *Kamma-Niyāma* through the three stories of action⁸⁰ that occurred during the time of the Buddha as follows:

The First Story of a Crow: In the time of the supreme Buddha, a village near the gate of Sāvathī was burnt down, a blazing wisp of hay therefrom rose up and caught the neck of a crow flying in the sky. The crow, screeching, fell to the ground and died.

The Second Story of a Woman: In the ocean, too, a certain ship got aground. They, not seeing any obstruction from below, cast lots; the unlucky number fell into the hand of the captain's wife. They then said: 'Owing to one woman let not all perish; we must throw her into the water.' The captain, saying 'I cannot bear to see her floating in the water,' tied a pot of sand to her neck and had her thrown. At that moment, the ship moved off like an arrow shot from a bow.

The Third Story of a Bhikkhu: A certain bhikkhu lived in a cave. A huge mountain peak fell and closed up the entrance. On the seventh day of itself it moved away.

They [monks] told these three stories together to the perfect Buddha, as he sat in the Jetavana preaching the Doctrine. The Teacher said, 'This *kamma* was not the work of other; it was done by the crow itself,' etc., and he showed the related past: - The crow in a previous existence was a man, who, being unable to tame a vicious ox; tied a bundle of straw to its neck and set it on fire, and the ox died. Now that action did not allow the crow to escape, even though he flew into the sky. That woman in a previous existence was also a woman. A dog was devoted to her, and when she went to the forest went and came back with her. Men scoffed at her with: 'There goes our dog-mistress.' She felt ashamed and, being unable to restrain the dog, tied a pot of sand to its neck and threw it into the water. That action did not allow the woman to escape in mid-ocean. That bhikkhu in a previous existence was a cowherd. When an iguana entered a hole he closed the entrance by a handful of broken twigs, and on the seventh day himself came and opened it. The iguana came out trembling. Through pity

⁸⁰ DhsA.272-273; Buddhaghosa, **The Expositor (Atthasālinī)**, Vol. II., tr. Maung Tin, (London: The Oxford University Press, 1921), pp. 361-362.

he spared its life. That action did not allow that bhikkhu to escape even when he had entered a mountain cave and sat there.

From these three examples of moral certainty, which are derived from all these stories, the jigsaw puzzle can be made clearer in the following table:

Stories	Present Existence			Previous Existence		
	Person	Cause	Result	Person	Cause	Result
First Story	Crow	Burning hay caught its neck	It died	Man	He tied a bundle of straw to the ox's neck and set it on fire	The ox died
Second Story	Woman	She had a pot of sand tied around her neck and was thrown into the sea	She died	Woman	She tied a pot of sand to the dog's neck and threw it into the water	The dog died
Third Story	Bhikkhu	A mountain peak closed the entrance; on the seventh day, it moved away	He was trapped in a cave	Cowherd	He closed the hole's entrance with broken twigs and opened it on the seventh day	The iguana was trapped for seven days

Table 4.4 Giving of Suitable *Kamma* Results Relating to Previous Existence

The above giving of suitable *kamma* results relating to previous existence best describes the moral certainty. It demonstrates the "fairness of the results of karma" by taking into account the actions performed in each individual's past lives. Thus, connecting these three stories, the Teacher spoke this verse: -

na antalikkhe na samuddamajjhe
na pabbatānaṃ vivaraṃ pavissa

lives, such as taking life or harming others. These evil deeds will give only evil results under this moral certainty.

4) Natural-phenomenal Certainty (*Dhamma-Niyāma*):

A unique and different explanation from the previous certainties is found in “Natural-phenomenal Certainty”. The Pali word “*dhamma*” here implies the most extensive possibilities, and is translated into English as “natural phenomenon”. But here, the commentator limits it to the description of important events that happened to the Buddha as follows:

Bodhisats taking conception, being born of a mother, their final enlightenment, as *Tathāgata* turning the wheel of *Dhamma*, the surrender of life and utterly passing away: - the world-earthquake at each is of the *Dhamma*-Order.⁸⁵

In Buddhism, earthquakes hold both natural and spiritual significance. Symbolically, earthquakes represent impermanence (*aniccam*), reminding practitioners that even the Earth is unstable and subject to change. They are often seen as signs marking profound events in the Buddha’s life, such as his birth, the descent into the Mother’s Womb, enlightenment, giving the First Sermon, pre-determination of death date, and passing into Mahāparinibbāna. Thus, earthquakes hold deep significance in the Buddhist spiritual and cosmological perspective.

One of the most controversial natural phenomena is the explanation of the cause of earthquakes from a Buddhist perspective, which encompasses not only scientific explanations but also beliefs in supernatural phenomena. As stated in the Suttanta Piṭaka, Dīgha Nikāya, Mahavagga, Mahāparinirvana Sutta, the Buddha told Ananda: “Ānanda, there are eight reasons, eight causes for the appearance of a great earthquake.”⁸⁶ They are as follows:

⁸⁵ DhsA.274; Buddhaghosa, **The Expositor (Atthasālinī)**, Vol. II., tr. Maung Tin, (London: The Oxford University Press, 1921), p. 362.

⁸⁶ D.II.107; Maurice Walshe (tr.), **Thus Have I Heard: The Long Discourses of the Buddha (Dīgha Nikāya)**, (London: Wisdom Publications, 1987), p. 247.

First Reason: This great earth is established on water, the water on the wind, the wind on space. And when a mighty wind blows, this stirs up the water, and through the stirring-up of the water the earth quakes.

Second Reason: In the second place, there is an ascetic or Brahmin who has developed psychic powers, or a mighty and powerful deva whose earth-consciousness is weakly developed and his water-consciousness is immeasurable, and he makes the earth shudder and shake and violently quake.

Third Reason: Again, when a Bodhisatta descends from the Tusita Heaven, mindful and clearly aware, into his mother's womb, then the earth shudders and shakes and violently quakes.

Fourth Reason: Again, when the Bodhisatta emerges from his mother's womb, mindful and clearly aware, then the earth shudders and shakes and violently quakes.

Fifth Reason: Again, when the Tathāgata gains unsurpassed enlightenment, then the earth shudders and shakes and violently quakes.

Sixth Reason: Again, when the Tathāgata sets in motion the Wheel of the Dhamma, then the earth shudders and shakes and violently quakes.

Seventh Reason: Again, when the Tathāgata, mindful and clearly aware, renounces the life-principle, then the earth shudders and shakes and violently quakes.

Eighth Reason: Again, when the Tathāgata gains the Nibbāna-element without remainder, then the earth shudders and shakes and violently quakes.

The above eight reasons are “the eight causes for the appearance of a great earthquake”.⁸⁷ The following table demonstrates the said different causes:

⁸⁷ D.II.107-109; See Maurice Walshe (tr.), **Thus Have I Heard: The Long Discourses of the Buddha (Dīgha Nikāya)**, (London: Wisdom Publications, 1987), pp. 247-248.

No.	Causes	Geography	Mental Power	The Buddha-Related Key Events
1	When a mighty wind blows, this stirs up the water, and through the stirring up of the water, the earth quakes	✓	-	-
2	By the powerful ones whose earth-consciousness is weakly developed and whose water-consciousness is immeasurable	-	✓	-
3	A Bodhisatta descends into his mother's womb	-	-	✓
4	The Bodhisatta emerges from his mother's womb	-	-	✓
5	The Tathāgata gains unsurpassed enlightenment	-	-	✓
6	The Tathāgata sets in motion the Wheel of the Dhamma	-	-	✓
7	The Tathāgata renounces the life-principle	-	-	✓
8	The Tathāgata gains the Nibbāna-element without remainder	-	-	✓

Table 4.5 The Eight Causes of a Great Earthquake

Among these eight causes, as stated by the Buddha, the great earthquake can first occur according to scientific theories, especially geography, which deals with the physical characteristics of the earth, water, wind, air, and space, etc. In addition, the Buddha also mentioned the power of the human and divine minds, which have great potential to inspire earthquakes. The remaining six causes are directly related to important events of the Buddha, starting from his descent into his mother's womb to his Mahāparinibbāna. These six important events related to the Buddha are in line with the explanation of *Dhamma-Niyāma* in The Expositor (Atthasālinī), that the great earthquake caused by (1) *Bodhisats* taking conception, (2) being born of a mother, (3) their final enlightenment, (4) as *Tathāgata* turning the wheel of *Dhamma*, (5) the surrender of life and (6) utterly passing away.

5) Psychological Certainty (*Citta-Niyāma*):

Among the five kinds of certainty, psychological certainty is one that Buddhism attaches great importance to, as the abstract element of life, in

addition to the material element of life. Psychological certainty (*citta-niyāma*) refers to the certainty of consciousness, as explained in the following way:

And when an object strikes the sentient organism there is no doer or instigator to say, ‘Be thou adverting,’ etc. From the time the object strikes the sentient organism; each according to its own nature adverting by the five doors agitates the life-continuum, visual cognition accomplishes the function of seeing, the resultant mind-element accomplishes the function of receiving, the resultant mind-cognition-element that of examining, the inoperative mine-cognition-element that of determining, apperception enjoys the taste of the object: - all this understood as the Psychological Order⁸⁸

This psychological certainty, explained by Venerable Buddhaghosa, refers to the certainty of consciousness. Since the mind has a nature that cannot be seen by the naked eye, understanding this requires a concept that is intelligent and aware of the nature of abstractions. Whenever objects (*ārammaṇa*) affect the sensory organs (*pasāda*), there is no “doer” or “mastermind” who orders the mind to do this or that. It is just the 14 different functions of the abstract mind, namely: - 1. rebirth-linking (*paṭisandhi*), 2. life-continuum (*bhavaṅga*), 3. adverting (*āvajjana*), 4. seeing (*dassana*), 5. hearing (*savana*), 6. smelling (*ghāyana*), 7. tasting (*sāyana*), 8. touching (*phusana*), 9. receiving (*sampañicchana*), 10. investigating (*santīraṇa*), 11. determining (*voṭṭhapana*), 12. impulsion (*javana*), 13. registration (*tadālabhāna*), and 14. death (*cuti*). It is purely a matter of “mental functions” under the psychological certainty.

When, by thrice-conditioned [*hetuka*] and non-automatic [*sasaṃkhārika*] moral consciousness [*kusala citta*], and also by automatic [*asaṃkhārika*] or non-automatic moral consciousness accompanied by indifference [*upekkhā*] *kamma* is wrought, and similar resultant consciousness [*vipāka citta*] comes in the re-conception obtained, the same method holds good. But in the two classes of consciousness accompanied by indifference, procedure, having first been shown by way of a fairly desirable object

⁸⁸ DhsA.274; Buddhaghosa, **The Expositor (Atthasālinī)**, Vol. II., 2 Vols. Set, tr. Maung Tin, (London: The Oxford University Press, 1921), p. 362.

[*iṭṭhamajjhattārammaṇa*], should afterwards be shown by way of a desirable object [*iṭṭhārammaṇa*]. Thus in each door are twelve, making sixty in all. By taking what has not been taken sixteen kinds of resultant consciousness arise.⁸⁹

From the above passage, Venerable Buddhaghosa points out in detail the minds from the Abhidhamma perspective, both in terms of their functioning and their fruition, whether it is moral consciousness (*kusala citta*), immoral consciousness (*akusala citta*), conditioned mind (*hetuka citta*), automatic consciousness (*asaṃkhārika citta*), non-automatic consciousness (*sasaṃkhārika citta*), consciousness accompanied by indifference (*upekkhā sahagata citta*), resultant consciousness (*vipāka citta*), etc. The psychical certainty is the nature and functioning of all these minds.

Among the numerical scriptures of commentarial works, the most concise discussion was found in *Sumaṅgalavilāsinī*, in a discussion of the meaning of *dhammatā* in the *Mahāpadāna Sutta*. And a similar discussion is also found in the *Aṭṭhasālinī*, in the context of a discussion of the Abhidhamma theory of perception.⁹⁰ It is noteworthy that there appear to be only a couple more references to the five-fold *niyāma* in the entire Pali commentarial literature.

The concepts on certainties in the *Dhammasaṅgaṇī Commentary* (*Abhidhamma Piṭaka Aṭṭhakathā*) are explained in a similar way to those in the *Mahāpadāna Sutta Commentary* (*Suttanta Piṭaka Aṭṭhakathā*), that is, they explain in the same direction. However, there are some slight differences in the details. Therefore, to see the differences in these details, the researchers present a table showing a comparison of the explanations on the five types of certainties as follows:

⁸⁹ DhsA.274; Buddhaghosa, **The Expositor (Aṭṭhasālinī)**, Vol. II., 2 Vols. Set, tr. Maung Tin, (London: The Oxford University Press, 1921), p. 362.

⁹⁰ And much the same discussion is put in verse in the *Abhidhammāvatāra*, a summary of *abhidhamma* by Buddhaghosa's contemporary, Buddhadatta, *Abhidh-av.* 54.

<i>Pañcavidhaniyāma</i>	Suttanta Piṭaka Aṭṭhakathā⁹¹ (Mahāpadāna Sutta Commentary)	Abhidhamma Piṭaka Aṭṭhakathā⁹² (Dhammasaṅgaṇī Commentary)
<p>1.</p> <p>Moral Certainty (<i>Kamma-Niyāma</i>)</p>	<ul style="list-style-type: none"> • The production of desirable good deeds • The production of undesirable evil deeds 	<ul style="list-style-type: none"> • <i>Tihetuka kamma</i> gives thrice-conditioned, twice-conditioned, unconditioned result • <i>Duhetuka kamma</i> gives twice-conditioned, unconditioned result, not thrice-conditioned result • This giving of suitable results by various <i>kammās</i>
<p>2.</p> <p>Caloric Certainty (<i>Utu-Niyāma</i>)</p>	<ul style="list-style-type: none"> • The collection of flowers and fruits from trees, cutting them only once • The wind blows/does not blow • The sun is strong/weak • The rain falls/does not fall • The lotus blooms during the day and closes at night 	<ul style="list-style-type: none"> • The simultaneous blossoming, fructifying and sprouting of such and such trees at such and such seasons
<p>3.</p> <p>Germinal Certainty (<i>Bīja-Niyāma</i>)</p>	<ul style="list-style-type: none"> • Wheat is the fruit that comes only from wheat • Sweetness is the fruit of nectar • Bitterness is the fruit of bitter plants 	<ul style="list-style-type: none"> • A giving of this and that similar modes of fruition to this or that seed • The gram's top shoots sprouting to the north • The southern creeper growing round a tree from the right • The sunflower's facing the sun • The Maluva creeper growing towards a tree • The holes occurring in the top of the cocoanut
<p>4.</p> <p>Psychical Certainty (<i>Citta-Niyāma</i>)</p>	<ul style="list-style-type: none"> • The previous consciousness and mental factors are <i>upanissaya paccaya</i> on the later consciousness and mental factors • The arising of <i>sampaṭicchanna citta</i>, etc., in the sequence of eye-consciousness, etc. 	<ul style="list-style-type: none"> • From the time the object strikes the sentient organism; each according to its own nature adverting by the five doors agitates the life-continuum, visual cognition accomplishes the function of seeing, the resultant mind-element accomplishes the function of receiving, the resultant mind-cognition-element that of examining, the inoperative mine-cognition-element that of determining, apperception enjoys the taste of the object
<p>5. Natural-phenomenal Certainty (<i>Dhamma-Niyāma</i>)</p>	<ul style="list-style-type: none"> • The arising of the trembling of the ten thousand worlds when the Bodhisattvas descended into the womb of their mothers 	<ul style="list-style-type: none"> • Bodhisats taking conception, being born of a mother, their final enlightenment, as Tathāgata turning the wheel of Dhamma, the surrender of life and utterly passing away: - the world-earthquake at each

Table 4.6 Comparison of *Pañcavidhaniyāma* in Suttanta Piṭaka Commentary and Abhidhamma Piṭaka Commentary

⁹¹ “*Niyāmo ca nāmesa kammaniyāmo utuniyāmo bījanīyāmo cittaniyāmo dhammaniyāmoti pañcavidho*” Mahāpadāna-Sutta-Vaṇṇanā- DA. II.432.

⁹² “*Imasmiṃ pana ṭhāne pañcavidhaniyāmaṃ nāma gaṇhiṃsu bījanīyāmaṃ utuniyāmaṃ kammaniyāmaṃ dhammaniyāmaṃ cittaniyāmaṃ ti.*” - DhsA.272.

When comparing and summarizing the concepts from the two scriptures in the table, we can see some differences. Consider them in order, starting from the caloric certainty to the last order, which is natural-phenomenal certainty, as follows:

1) Moral Certainty is defined in both Mahāpadāna Sutta Commentary and Dhammasaṅgaṇī Commentary as the certainty of action (*kamma*) according to the principle of actions and their fruitions (*vipāka*).

2) Caloric Certainty in Mahāpadāna Sutta Commentary clearly emphasizes the climate, wind, sun, rain, etc. But in Dhammasaṅgaṇī Commentary, it only mentions the leafy and fruitful fruits of trees, but does not mention the climate in any way.

3) Germinal Certainty, both in Mahāpadāna Sutta Commentary and Dhammasaṅgaṇī Commentary mention the same thing, which is the transmission of genetic traits from plant to plant. Dhammasaṅgaṇī Commentary further explains some of the specific characteristics of the plant, such as the clump of beans stretching to the left and the vines to the right enveloping the tree to the right, or the sunflower facing the sun. However, in the research team's opinion, the explanation of the issue (specific characteristics of plants) is not as clear as it should be, and there is some ambiguity, which may be a turning point in the concept of *niyāma*, potentially leading to different interpretations by scholars in later times. It is easy to get away from the traditional teachings.

4) Psychical Certainty, both Mahāpadāna Sutta Commentary and Dhammasaṅgaṇī Commentary explain the certainty of mind in the same direction, that is, it describes the function of the minds and their concomitants that are related to each other as causes and relational factors.

5) Natural-phenomenal Certainty in both Mahāpadāna Sutta Commentary and Dhammasaṅgaṇī Commentary explains that the certainty of Dhamma defines those supernatural phenomena, namely, the shaking in the ten thousand elemental worlds. This is due to the bodhisattvas.

Although there are some minor differences between the two scriptures, it is considered another unique explanation of the certainty.

The research team will analyze and present personal views in the following order as appropriate.

However, when the fivefold certainties are written as a chart according to the sources found in the commentary, they can be displayed as follows:

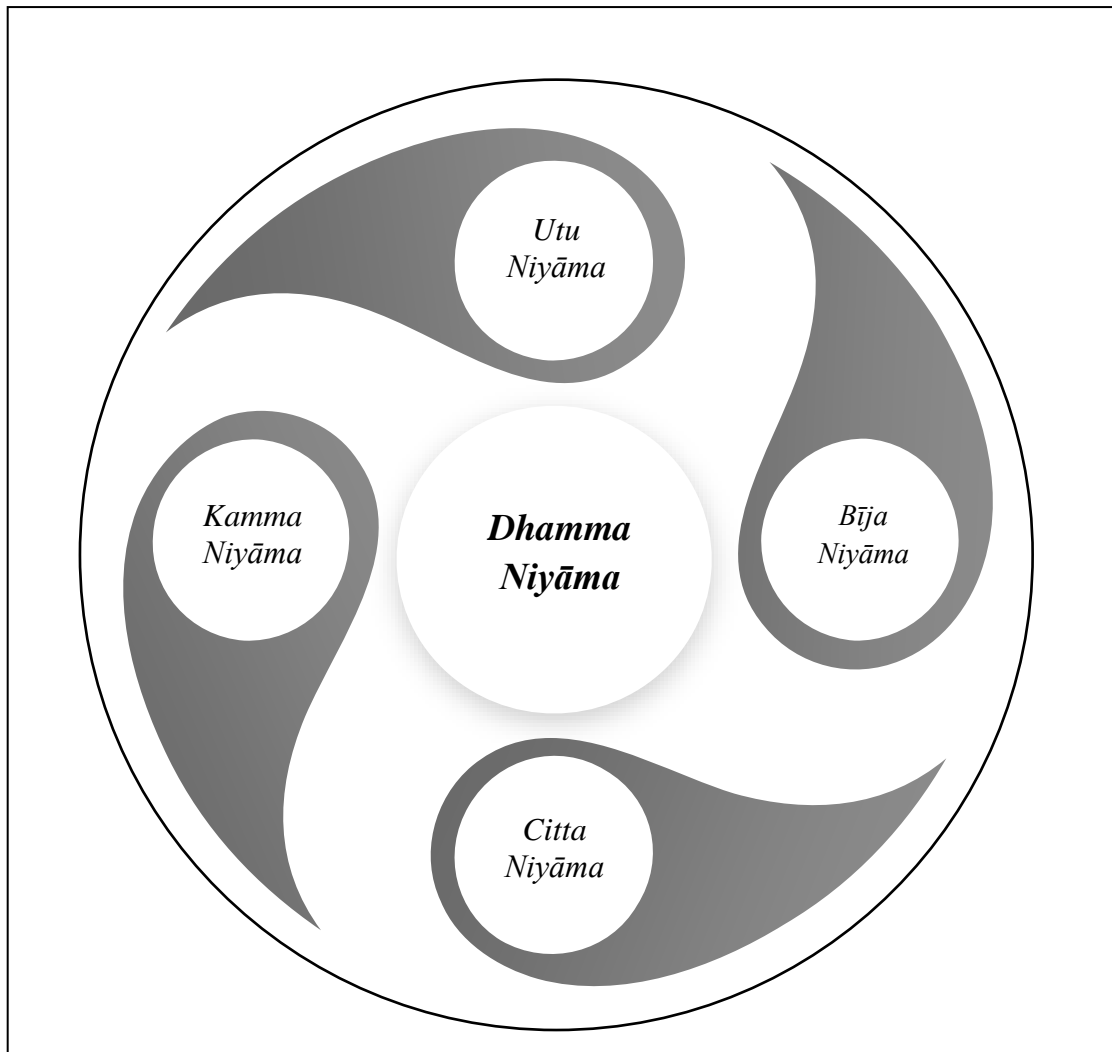


Chart 4.3 Natural Laws in Commentaries

From the chart, it can be clearly seen that the definitions that commentary classified the law into 5 certainties. Natural Phenomenal Certainty is the key principle that encompasses all the other four sub-principles.

According to the study, natural law presented in the commentary reveal that they provide the meaning and definition of certainty,

categorizing it into five types based on the nature of the certainty. Natural law in Suttanta Piṭaka Aṭṭhakathā emphasize the explanation of the five types of certainty in the manner of various events that are certainties that occur regularly in daily life, namely Moral, Caloric, Germinal, and Psychological Certainty, while Natural-phenomenal Certainty signifies events that are supernatural phenomena that may not occur very often during human life. When the Mother of Bodhisattvas descended into the womb, and so on. Moreover, natural law in Abhidhamma Piṭaka Aṭṭhakathā are consistent and close to the explanation that appears in the Suttanta Piṭaka Aṭṭhakathā. In other words, it is explained in the same direction as follows: (1) Germinal Certainty is an explanation of the different modes of fruition of plants and green things. (2) Caloric Certainty is an explanation of the climate, seasons, and temperature. (3) Moral Certainty is an explanation of the definition of action; emphasis is on the principle of *kamma*, which is the action that produces the effect of action. (4) Natural-phenomenal Certainty emphasises supernatural phenomena that may not occur often, namely, the tremors in the ten thousand elemental worlds, because of the bodhisattvas. (5) Psychological Certainty is an explanation of mental definition.

For the explanation of the two different scriptures, including the explanation of the Germinal Certainty in the Abhidhamma Piṭaka Aṭṭhakathā. The commentator further explains some specific characteristics of plants, such as the clump of beans hanging to the left and the vines to the right enveloping the tree, or the sunflower facing the sun, which is not as clear as it should be and may be somewhat ambiguous. In the Dhammasaṅgaṇī Commentary, it only mentions the leaf production and fruit of trees, but does not mention the climate in any way.

4.1.3 Developmental Analysis of Natural Laws (*Niyāma*) as Appeared in Tipiṭaka and Commentaries

When the facts of all the research from the Tipiṭaka and the commentaries respectively are processed, synthesized, and analyzed, natural law can be analyzed in the ways that the Buddha did not classify any law, but he taught in the context of a “*niyāmatā*” principle, it is of great importance and meaningful, because it is about the highest goal that

Buddhism can offer to the religious people to have a way to behave to achieve that goal. The principle of dependent origination (*paṭiccasamuppāda*) or the relational factor and the principle of the three common characteristics of the elements. These concepts are collected in a primary scripture called the “Tipiṭaka”.

As time passed until about the 5th century, the Commentary was born⁹³, which is the source of the explanation of the Buddhist principles of the *Niyāma*. The Fivefold *Niyāma* is considered an initiative to expand “From one to five,” starting from the Moral Certainty, the Caloric Certainty, the Germinal Certainty, the Psychological Certainty, and the Natural-phenomenal Certainty, that the commentator uses to explain the laws of nature.

The largest category of *Niyāma* explained by commentator is “*Dhamma-Niyāma*,” which is unique in that when Bodhisattvas contemplate the moment of their birth from their mother’s womb, the moment of their enlightenment attaining the supreme and perfect enlightenment, the moment the Wheel of Dhamma moves, the moment of their death prediction, and the moment of their final Nibbāna, the great earthquake will happen. These phenomena are considered the Natural-phenomenal Certainty (*Dhamma-Niyāma*). Buddhaghosa mentioned:

Bodhisats taking conception, being born of a mother, their final enlightenment, as Tathāgata turning the wheel of Dhamma, the surrender of life and utter passing away: - the world-earthquake at each is of the Dhamma-Order.⁹⁴

The trembling of the world at the birth of a Bodhisattva, etc., is a truly wonderful and astonishing beauty. These are natural certainties

⁹³ When the Tipiṭaka was transmitted by oral tradition (*mukhapāṭṭha*), the commentaries were also transmitted simultaneously. Until the Tipiṭaka was inscribed on palm leaves in Sri Lanka around 460 B.E., the legend says that the commentaries were also inscribed at the same time. Phra Brahmaganabhorn (P. A. Payutto), **The Pali Canon What a Buddhist Must Know**, (Thai Version), (Bangkok: S.R. Printing Mass Products Co., Ltd., 2002), p. 53.

⁹⁴ Maung Tin, **The Expositor**, ed. by C.A.F. Rhys Davids, vol. 2, (London: PTS, 1921): p. 362.

known as “*Dhamma-Niyāmatā*”.⁹⁵ The researchers believe that the expansion of the Commentary is done in three major ways:

1) An explanation of the meaning of the *Niyāma* as “certainty” (*niyato*) in place of the original meaning in the Tipiṭaka, which uses the phrases “this orderly fixing of things”, and “the fixed course of the Dhamma.”

2) An expansion or classification of “one law” into five categories.

3) An explanation of the five categories, by explaining the first four types of *Niyāma* (*Kamma-Niyāma*, *Utu-Niyāma*, *Bīja-Niyāma*, and *Citta-Niyāma*) as natural phenomena, representing common events occurring in daily life within the social context of the time, and explaining the fifth *Niyāma* (*Dhamma-Niyāma*) as a supernatural phenomenon that occasionally occurred, e.g., the trembling of the ten thousand worlds, such as the descent into the womb of the Mother of Bodhisattvas, etc.

There may be limitations in using the term “certainty.” The researchers disagree with the use of the term “certainty” in place of “this orderly fixing of things” or “the fixed course of the Dhamma,” as these terms were already used in the Tipiṭaka. This is because these two terms already encompass everything in the universe and have a neutral and much broader meaning, without implying certainty or uncertainty. If we refer to “certainty” as an explanation for natural phenomena, the question arises: “Is nature certain?” This question requires us to consider the past. During the 16th to 18th centuries, the world underwent a major shift in scientific thinking, driven by experimental research and verification of various theories by Nicholas Copernicus,⁹⁶ who proposed a theory about the universe that the Sun, not the Earth, was the center of the solar system. This theory is contrary to the original belief theory that existed more than 1,500

⁹⁵ Buddhadatta, ed. By A.P., **Buddhadatta’s Manuals. Part 1: Abhidhammāvatāra**, (London: PTS, 1980), p. 54.

⁹⁶ Nicholaus Copernicus was a scientist of Polish descent (1473-1543 C.E.) - Linton, Christopher M., **From Eudoxus to Einstein-A History of Mathematical Astronomy**, (Cambridge: Cambridge University Press, 2004), p. 39.

years ago, proposed by Ptolemy.⁹⁷ Furthermore, he challenged Aristotle's theory⁹⁸ that the Earth was flat, with the subsequent discovery that it was round.

This phenomenon is a phenomenon of a revolution of thought that has occurred in mankind, showing us that this kind of inductive reasoning can show that the earth and the universe are uncertain. Even the sun itself may change its orbital direction. Just like the change of the Earth's axis of rotation, "Over the past few decades, magnetic north's movement has been unprecedented — it dramatically sped up, then in a more recent twist rapidly slowed — though scientists can't explain the underlying cause behind the magnetic field's unusual behavior."⁹⁹ Thus, in terms of plant reproduction (*Bīja-Niyāma*) or temperature, heat, season, rain, sky, etc., there is a chance of change and uncertainty. Therefore, the researchers' view is that the word "certainty" should not be used to describe things in the universe, including the earth. In addition to being difficult to understand, it is also easy to confuse. It is due to the word chosen.

The reason why the commentary separates the *Niyāma* types and describes them in a more detailed way. The researchers believe that there is a possibility caused by the era of the commentary. It was an era when many scriptures were produced, such as the Visuddhimagga. From this perspective, it may easily cause the development of knowledge in the *Niyāma*.

⁹⁷ Ptolemy was a mathematician, astronomer, geographer, and astrologer. He was born in Egypt and died in Alexandria, living from 90 to 168 AD. - Jean Claude Pecker, **Understanding the Heavens: Thirty Centuries of Astronomical Ideas from Ancient Thinking to Modern Cosmology**, (Heidelberg: Springer, 2001), p. 311.

⁹⁸ Aristotle was a native of Stagira in Macedonia, a student of Plato, who lived from 284 to 322 BC., quoted in Kirati Boonjue, **Folk Philosophy**. (Thai Version), (Bangkok: Double Nine Publishing House, 2000), p. 120.

⁹⁹ Mindy Weisberger, CNN Science Tue January 21, 2025, Earth's magnetic north pole is on the move, and scientists just updated its position, [Online], Source: <https://edition.cnn.com/2025/01/21/science/magnetic-north-pole-new-position> [Retrieved on August 1, 2025].

4.1.4 Concluding Remarks

From a study of the Development of Natural Laws (*Niyāma*) as appeared in Tipiṭaka and Commentaries, it was found that *niyāma* implies “this orderly fixing of things”, or “the fixed course of the Dhamma.” *Niyāma* appears in two contexts: (1) *Niyāma* in the context of Dependent Origination in the Paccaya Sutta, and (2) *Niyāma* in the context of *samaññalakkhaṇa* in the Uppādāya Sutta. In both contexts, *Niyāma* refers to “*Dhamma-Niyāma*.” Natural Laws as found in the commentaries, the commentator defines Natural Laws as certainty and classifies Natural Laws into five types based on the nature of that certainty. Evidence of these five types of Natural Laws can be found in two major places: the Mahāpadāna Sutta Commentary and the Dhammasaṅgaṇī Commentary, respectively.

Niyāma in the Mahāpadāna Sutta Commentary emphasizes explaining the five types of *Niyāma* in the context of certain events that regularly occur in daily life: *Kamma-Niyāma*, *Utu-Niyāma*, *Bīja-Niyāma*, and *Citta-Niyāma*. As for supernatural phenomena, which are also certain, but may not occur frequently in a human lifetime, *Dhamma-Niyāma*, a phenomenon beyond nature, such as the trembling of the ten thousand worlds upon the descent of the Bodhisattva’s mother into the womb.

The definitions in the Dhammasaṅgaṇī Commentary are consistent and closely related to the explanations found in the Mahāpadānasutta Commentary, explaining in the same direction as follows: (1) *Bīja-Niyāma*: This explains Germinal Certainty, emphasizing the transmission of genetic characteristics from plant to plant. (2) *Utu-Niyāma*: This explains Caloric Certainty, emphasizing climate, earth, sky, air, wind, and rain. (3) *Kamma-Niyāma*: This explains Moral Certainty, emphasizing the principle of action and its fruitions, namely, actions that produce results. (4) *Dhamma-Niyāma*: This explains Natural-phenomenal Certainty, emphasizing the supernatural phenomenon that may not occur often, namely, the trembling of the ten thousand worlds caused by the Bodhisattvas. (5) *Citta-Niyāma*: This explains Psychological Certainty, emphasizing the function of the mind and mental factors, their interrelated causes and conditions.

The two scriptures differ in their explanations of the *Bīja-Niyāma*, with the Dhammasaṅgānī Commentary further explaining certain plant characteristics, such as the winged bean stalks extending to the left and the vines to the right, encircling the tree to the right, or the sunflowers facing the sun. These explanations are not entirely clear and may contain some ambiguity. The Dhammasaṅgānī Commentary also discusses the *Utu-Niyāma*, which only mentions the emergence of leaves and fruits, without any mention of the climate.

4.2 Natural Laws (*Niyāma*) from Modern Scholars' Perspectives and A Developmental Model of the Natural Laws (*Niyāma*) in Theravāda Buddhism

In this issue, the research team presents the definitions of scholars in the present era after the era of the commentators. The research is presented by framing the research into 3 categories as follows: (1) Thai Scholars' Perspectives on Natural Laws (*Niyāma*), (2) International Scholars' Perspectives on Natural Laws (*Niyāma*), (3) A Developmental Model of Natural Laws (*Niyāma*) in Theravāda Buddhism.

4.2.1 Thai Scholars' Perspectives on Natural Laws (*Niyāma*)

Niyāma as of academics in Thailand is presented according to the following topics: (1) Venerable Phra Brahmaganabhorn (P.A.Payutto) and (2) Professor Dr. Somparn Promta, as follows:

1. Venerable Phra Brahmaganabhorn (P.A.Payutto)

There are interesting issues regarding the concept of the Natural Law of Venerable Phra Brahmaganabhorn, namely (1) Natural Laws by Phra Brahmaganabhorn (P. A. Payutto), and (2) The Sixth Law, as follows:

a) Natural Laws by Phra Brahmaganabhorn (P. A. Payutto)

Niyāmas, as defined by Phra Brahmaganabhorn (P. A. Payutto), refers to “orderliness of nature or the five aspects of natural law.”¹⁰⁰ He gives further explanation in the Buddhadhamma as follows:

¹⁰⁰ For details, see Phra Brahmaganabhorn (P. A. Payutto), **Dictionary of Buddhism**, 16th ed. (Thai Version), (BKK: S. R. Printing Mass Product Ltd., 2008), p. 166.

1) *Utu-Niyāma*: law of energy; law of physical phenomena; physical inorganic order; physical laws. This refers in particular to the external environment and to alterations in physical matter. E.g., the weather and seasons; the fact that water, soil, and fertilizer assist the growth of plants; the fact that lotus blossoms open during the day and close at night; the process of sneezing and coughing; and the fact that all things are subject to corrosion and decay.

2) *Bīja-Niyāma*: genetic law; law of heredity; laws of reproduction; physical organic order; biological laws. For example, the fact that a specific plant will produce a specific fruit; a mango tree, for instance, will always bear mangos.

3) *Citta-Niyāma*: psychic law; psychological laws; the laws of nature about the functioning of the mind. For example: when a sense stimulus contacts a sense base, cognition arises – the passive state of mind (*bhavaṅga-citta*) is shaken and interrupted, there is adverting of the mind (*āvajjana*), seeing, hearing, etc., acceptance (*sampañicchanna*), judgement (*santīraṇa*), etc.; specific mind states may be accompanied by certain mental concomitants (*cetasika*), whereas they may not be accompanied by others.

4) *Kamma-Niyāma*: law of *kamma*; order of act and result; kammic laws; moral laws. Natural laws about human behavior. More specifically, this refers to the process of intention and the process of conceptualization, along with the corresponding results of these mental activities. For example, if one performs good actions, one reaps good results; if one performs bad actions, one reaps bad results.

5) *Dhamma-Niyāma*: general law of cause and effect; order of the norm. The law of nature of the interrelationship and mutual conditionality of all things. For example: all things arise, are sustained, and come to an end; it is the norm that human beings are born, age, fall ill, and die; the normal lifespan of human beings at this time era is roughly one hundred years; regardless of whether a Buddha appears or

not, it is part of the natural order that all things are impermanent, ‘subject to pressure’ (*dukkha*), and non-self (*anattā*).¹⁰¹

Dhamma-Niyāma is explained as a state of impermanence, arising and dissolution, called *aniccatā*. The state of being oppressed by birth and dissolution, with inherent conflicting pressures and imperfections, is called *dukkhatā*. The state of being without self is called *anattatā*. *Paṭiccasamuppāda* demonstrates these three conditions in all things and their interconnected, continuous, and mutually causal relationships, leading to the manifestation of various forms in nature. This state and the observance of the principle of dependent origination apply to all things, both concrete and abstract, both in the material world and in life, comprised of both material and abstract phenomena. It manifests itself in various natural laws: *Dhamma-Niyāma*: the general law of cause and effect, *Utu-Niyāma*: laws of the material world (physical laws), *Bīja-Niyāma*: laws governing living things, including genetics (biological laws), *Citta-Niyāma*: laws governing the workings of the mind (psychological laws), and *Kamma-Niyāma*: law of ‘*kamma*’ (intentional action; kammic laws), which determines human wellbeing and is directly linked to ethics.¹⁰² His explanation of *Dhamma-Niyāma* does not draw on the ideas of the commentator. No explanation of any supernatural phenomena is involved.

In his book “Buddhism as the Foundation of Science,” examples of everyday phenomena are given based on descriptive analysis:

The same phenomenon may be caused by different natural factors, and some phenomena are caused by multiple natural factors working interdependently. For example, when a person sheds tears, it may be caused by smoke (*Utu-Niyāma*), it may be caused by great joy or sadness (*Citta-Niyāma*), or it may be due to the manipulation of thoughts in a way that compresses one’s mind (*Kamma-Niyāma*).

¹⁰¹ Bhikkhu P.A. Payutto (Somdet Phra Buddhaghosacariya), **Buddhadhamma: The Laws of Nature and Their Benefits to Life**, 4th Ed. Tr. by Robin Philip Moore, (Bangkok: Buddhadhamma Foundation, 2021), pp. 388-389.

¹⁰² *Ibid.*, p. 248.

These phenomena arise through three of the five factors: *Utu-Niyāma*, *Citta-Niyāma*, and *Kamma-Niyāma*.¹⁰³

In addition to the three natural laws mentioned above, *Dhamma-Niyāma* can also be analyzed in the context of interdependent phenomena. We now see the possibilities of interpreting various phenomena using this principle, depending on the context of the situation. In this example, there are no elements related to the natural laws of plant heredity. Thus, the *Bīja-Niyāma* is not mentioned. Another example, he explained that a person has a severe headache, which may be caused by a brain tumor (*Bīja-Niyāma*), or it may be due to insufficient air or too hot temperature (*Utu-Niyāma*), or it may be due to anxiety (*Kamma-Niyāma*). One challenge here is the potential for diverse interpretations due to the “closeness of some Natural Laws.” For example, *Citta-Niyāma* and *Kamma-Niyāma* are related in terms of mind and action, as mind is one channel of action (*mano-kamma*). Action consists of three channels: bodily, verbal, and mental. Therefore, action is counted only because it involves mental intention. Meanwhile, “*Dhamma-Niyāma*” encompasses all laws. In short, *Niyāma*-framework interpretation is flexible, depending on the reasoning and explanations used. Therefore, those who apply the *Niyāma* must always have their own explanations to support their reasoning.

Phra Brahmaganabhorn also discussed the scope of scientific *Niyāma*, stating that science, as it has been known, has relied heavily on physical laws, limiting its study to only the *Bīja-Niyāma* and *Utu-Niyāma*. In Buddhism, however, much emphasis is placed on *Kamma-Niyāma*, even though Abhidhamma emphasizes the study of *Citta-Niyāma* in order to connect them with *Kamma-Niyāma* and *Dhamma-Niyāma*.¹⁰⁴ When the explanation of science and definitions is presented using a chart, the following chart illustrates the scope of *Niyāma*: scientific and beyond.

¹⁰³ For details, see Phra Thepweethi (Prayuth Prayutto), **Buddhism as the Foundation of Science**, (Thai Version), 3rd ed., (Bangkok: MCU Press, 1993), p. 106.

¹⁰⁴ *Ibid.*, p. 103.

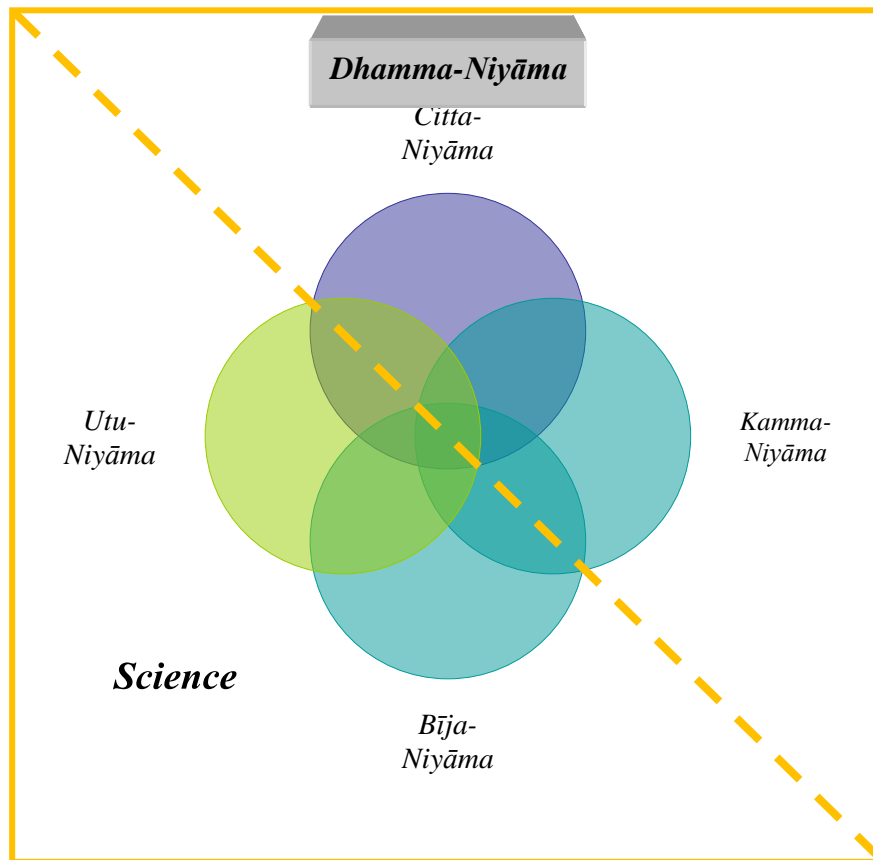


Chart 4.4 Scope of *Niyāma*: Scientific Domains and Beyond

Based on Phra Brahmaganabhorn’s conception of the *Niyāma*, it can be concluded that science can only reach the level of explanation of material objects. This is comparable to only the *Utu-Niyāma* and *Bīja-Niyāma*, as science aims to study material nature. As for the mental nature, science itself cannot yet reach it because there are no tools to adequately measure and explain the mind as it really is. Therefore, science’s scope is limited to the *Utu-Niyāma* and *Bīja-Niyāma*, but it does not yet reach the *Citta-Niyāma*, *Kamma-Niyāma*, and especially *Dhamma-Niyāma*, for the reasons previously mentioned.

b) The Sixth Law

In addition to the Fivefold *Niyāma* mentioned above, Phra Brahmaganabhorn stated that there is another type of law that is specifically human, not found in nature, and not directly related to nature. These are laws established by humans as agreements to regulate human behavior among themselves to ensure peaceful coexistence. These are

considered social laws, such as rules, regulations, laws, customs, traditions, and discipline. They may be placed at the end of the set as the sixth law, but they do not yet have a coherent name. Alternatively, they may be called “socialism.”

For the sake of convenience, one may designate a similar heading for this group of social prescriptions to those laws of nature. Yet one needs to be aware that this so-called ‘sixth law’ lies outside and apart from the group of five natural laws. There are many such headings to choose from, including: *saṅgama-niyāma* (‘social law’), *saṅgama-niyamana*¹⁰⁵ (‘social practice’), *sammatti-niyāma* (‘conventional law’), and *paññatti-niyāma* (‘prescribed law’).¹⁰⁶

At this point, there may be more than five natural laws. This is the turning point for the creation of more natural laws adding to the original numbers, depending on one’s own opinions. Here, the sixth law is added to emphasize the existence of another law that is relevant to human coexistence. He further said:

These social criteria and guidelines are fashioned by human beings. They thus result from intentional actions and are related to the law of *kamma* (*Kamma-Niyāma*). Yet they are supplementary to the law of *kamma* – they do not constitute *Kamma-Niyāma* per se. They are not characterized by mutual conditionality, nor are they aspects of natural truth in the way that *Kamma-Niyāma* is. Because they overlap with the law of *kamma*, the difference between the two tends to cause confusion, which in turn leads to numerous debates and misunderstandings among people.¹⁰⁷

From the concept of “*Saṅgama-Niyāma*” (Social Law),” as the Sixth Law of Phra Brahmagunabhorn, as given in the example above. The research team has a different opinion that “Socialism” should not be included in the Fivefold *Niyāma*, for at least two reasons as follows:

¹⁰⁵ “Tran.: note that the term *niyamana* is linked etymologically to *niyama*” - Bhikkhu P.A. Payutto (Somdet Phra Buddhaghosacariya), **Buddhadhamma: The Laws of Nature and Their Benefits to Life**, 4th Ed. Tr. by Robin Philip Moore, Footnote No.6, p. 393.

¹⁰⁶ Op. Cit.

¹⁰⁷ Ibid., pp. 393-394.

(1) First, Social Law (*Saṅgama-Niyāma*) has characteristics that overlap with *Kamma-Niyāma*.” As he stated, it is a matter of human conditioning. It is something that arises from *kamma*, depends on, and is a complex addition to *Kamma-Niyāma*. Therefore, it can be said that *Saṅgama-Niyāma* is *Kamma-Niyāma*. In this case, separating *Saṅgama-Niyāma* and establishing it as another “*Niyāma*” is a redundancy of the existing law.

(2) Second, *Saṅgama-Niyāma* has characteristics that contradict the *Dhamma-Niyāma*. Since the *Dhamma-Niyāma* is the central principle in Buddhism, the Buddha taught his disciples about Dependent Origination and the three common characteristics. This ultimate content demonstrates the interrelated factors, the arising, persistence, and cessation of elements. This *Dhamma-Niyāma* can therefore be used to explain all things, including all phenomena in the world and universe. There should be nothing that is beyond the *Dhamma-Niyāma*. Therefore, regarding his statement “They [social criteria of *Saṅgama-Niyāma*] are not characterized by mutual conditionality, nor are they aspects of natural truth,” the *Saṅgama-Niyāma* may contradict the *Dhamma-Niyāma* in this sense. The following chart shows the The Sixth *Niyāma* of Phra Brahmagunabhorn:

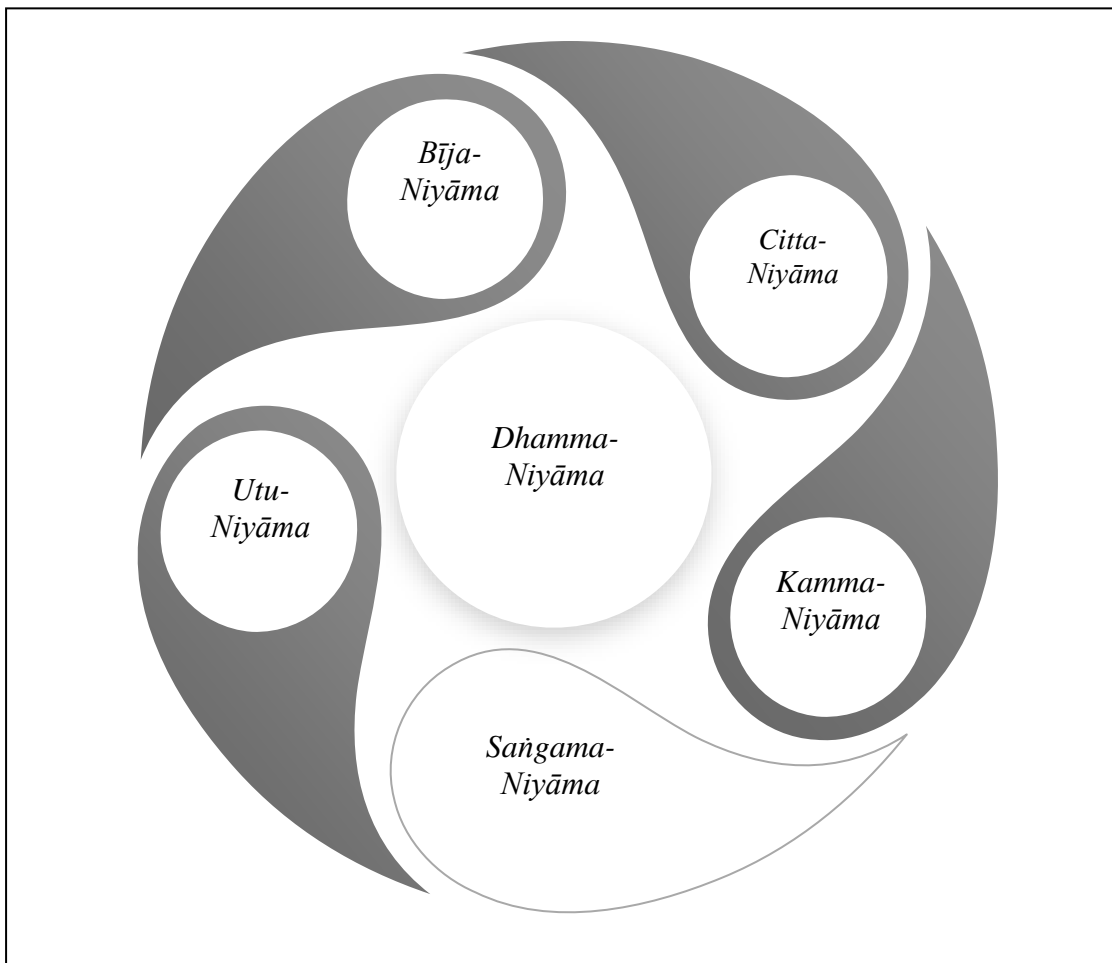


Chart 4.5 The Sixth *Niyāma* of Phra Brahmaganabhorn

From the study of *Niyāma* according to Phra Brahmaganabhorn (P.A. Puyutto), it is found that the Phra Brahmaganabhorn mainly uses the concept of *Niyāma* of the commentary, especially in terms of the meaning, to explain various phenomena of the nature while maintaining the original manner of explanation that appears in the Pāli Canon. Phra Brahmaganabhorn explains the 5 types of *Niyāma* mainly according to the guidelines of the commentaries, but there are additional parts that differ from the following 3 points. First, the explanation of the term *Utu-Niyāma*, summarizing its essence as variations due to heat or temperature. For example, the way soil, water, and fertilizer help trees flourish, the way people cough or sneeze, and the way things decay. Second, the explanation of the term *Kamma-Niyāma*, as the process of intention, which is related to ethics. Finally, the example of the term *Dhamma-Niyāma*, stating that

people are naturally subject to birth, aging, illness, and death, and that the lifespan of people in this era is approximately one hundred years, is given.

There are some interesting observations regarding the concept of *Dhamma-Niyāma* by Phra Brahmagunabhorn. His explanation differs from that of the commentators. He does not discuss *Dhamma-Niyāma* in the context of supernatural events of the Bodhisattva. His explanation of *Dhamma-Niyāma* relies primarily on the approach found in the Tipiṭaka, addressing only two aspects: Dependent Origination and the Three Characteristics of Character.

2. Professor Dr. Somparn Promta

The research team divided the presentation into 2 points: (1) Natural Laws by Professor Dr. Somparn Promta and (2) Method of Examining the *Niyāma*, as follows:

a) Natural Laws by Professor Dr. Somparn Promta

Somparn Promta said that the origin of the concept of *Niyāma* came from the Buddha's proclamation of Buddhism. This new concept is in various changes in nature. What is behind it is not a god; rather, it is a natural law called *idappaccayatā*, *Dhamma-Niyāma*, etc.¹⁰⁸ Buddhism believes these five laws of nature encompass all natural phenomena in the universe. This means that Buddhism views the universe as comprising a multitude of things, each with its own distinct characteristics. Despite their individual characteristics, these things can be grouped in the same category as other things. For example, inanimate matter, such as rocks, is living but without a mind; living things, such as humans and animals, have minds.¹⁰⁹ This *Dhamma-Niyāma* encompasses everything in the universe. Therefore, it is appropriate that some translate the *Dhamma-Niyāma* as “the general law of cause and effect.”¹¹⁰ He explained the five definitions, based on the commentaries, as follows: (1) Physical law (*Utu-Niyāma*) is a natural law concerning inanimate objects, (2) Biological law (*Bīja-Niyāma*) is a natural

¹⁰⁸ Somparn Promta, **Buddhism and Science**, (Thai Version), (Bangkok: Maha Chulalongkorn Royal College, 1991), p. 60.

¹⁰⁹ Somparn Promta, **Religion for the Development of Quality of Life**, (Thai Version), 3rd ed, (Bangkok: Arun Printing Co., Ltd., 2006), p. 31.

¹¹⁰ Somparn Promta, **Buddhism and Science**, p. 65.

law concerning living things, (3) Psychic law (*Citta-Niyāma*) is a natural law concerning the mechanisms of mental functioning, (4) Law of Action (*Kamma-Niyāma*) is a natural law of action's production, divided into good and bad action, and (5) Causality or general law of cause and effect (*Dhamma-Niyāma*) is a summary of all laws, a comprehensive law encompassing all laws.¹¹¹ Somparn Promta said that Buddhism teaches the five laws of nature, which are the law of seasons, the law of seed, the law of the mind, the law of *kamma*, and the law of *Dhamma*,¹¹² respectively.

Utu-Niyāma: In his view, the essence is: All material objects are interrelated. Between two objects, one is a cause and the other an effect, there is order, consistency, and definite rules. Within each object, there is order, consistency, and definite rules. And in the material world, the same cause produces the same effect.

Bīja-Niyāma: In his view, all living things (organisms) are interrelated. Between two living things, one is a cause and the other is an effect; there is order, consistency, and definite rules. Within each living thing, there is order, consistency, and definite rules. And in the world of living things, the same cause produces the same effect.

Citta-Niyāma: In his view, all minds are interrelated. Between two minds that are interrelated in the sense that one is the cause and the other the effect, there is order, consistency, and definite rules. Within each mind, there is order, consistency, and definite rules. And in the world of minds, the same cause produces the same effect.

Kamma-Niyāma: In his view, every intentional action (*kamma*) always has a consequence for the doer. Except for actions that cannot be fulfilled because the doer no longer exists in the cycle of existence, there is no consequence. This type of action is called *ahosi-kamma*. There are two types of action: good and bad. Good action always produces good consequences, while bad action always produces bad consequences. Between action and its consequences, there is order, consistency, and definite rules. The same action, performed by a person with similar

¹¹¹ Ibid., p. 62.

¹¹² Interview with Prof. Dr. Somparn Promta, Director of Center for the Study of Buddhist Philosophy, MCU, Thailand, February 1, 2024.

qualities and performed towards something with similar qualities, will produce the same results.¹¹³ Human life truly achieves a high value, in accordance with the definition of “human,” only through the practice of good deeds (*kusala kamma*) or virtues. Having virtues or doing good deeds serves as a criterion for determining whether a person’s life is of high or low value.¹¹⁴

Dhamma-Niyāma: The Buddha taught the law of nature in the sense of relational conditions: *imasmiṃ sati idaṃ hoti. . . imasmiṃ asati idaṃ na hoti*¹¹⁵ “When this exists, that comes to be. . . when this does not exist, that does not come to be.”¹¹⁶ This clearly confirms that all things come into being through interdependence. Nothing comes into being by itself without relying on other factors. Somparn Promta emphasized the *Dhamma-Niyāma* as the main law. The remaining four laws as sub-laws¹¹⁷ as explained in detail as follows:

When there is A, there is B. (*imasmiṃ sati idaṃ hoti*)

When there is no A, there is no B. (*imasmiṃ asati idaṃ na hoti*)

Both A and B in this law refer to everything in the universe. However, there is a condition that things can fit into this law only if they are related in a way that one is the cause and the other is the effect. Translated into ordinary language, this law suggests that Buddhism believes in the order of nature. This order is observed in the fact that the same cause always produces the same effect.¹¹⁸ Human life is considered a process of dependent origination. Life changes in a cycle of birth, existence, and dissolution. It is not accidental or caused by a single cause but rather depends on a chain of factors that intertwine and are continuously interconnected. If we trace the origins of the universe, we find

¹¹³ Ibid., p. 66.

¹¹⁴ See Somparn Promta, **Buddhism and Ethical Issues: Prostitution, Abortion and Execution**, (Thai Version), (Bangkok: Chulalongkorn University Press, 2008), pp. 156-157.

¹¹⁵ S.II.78.

¹¹⁶ Bhikkhu Bodhi (tr.), **The Connected Discourses of the Buddha A New Translation of the Saṃyutta Nikāya**, Vol. I. 2 vols. set. (Oxford: PTS, 2000), p. 585.

¹¹⁷ Op Cit.

¹¹⁸ Somparn Promta, **Buddhism and Science**, p. 65.

that the cycle and process of life's change begin with space, or emptiness. This is the nature of *Dhamma-Niyāma*.¹¹⁹

The essence of his ideas can be summarized that the essence of all Natural Laws is one thing: the belief in order, consistency, and certainty between cause and effect.¹²⁰ He points out that *Utu-Niyāma* refers to inanimate objects such as rocks, soil, tables, books, stars, etc. *Bīja-Niyāma* refers to living things (plants and animals). Certain organs in a person function consistently, whether we are aware of them or not. For example, the heart. For example, it will continue to beat whether we are awake or asleep. The heart is a living unit. Its consistent functioning is a sign of order within a living unit. This principle of *Bīja-Niyāma* seems more important than the principle of *Utu-Niyāma* because it concerns us more deeply. We suffer more from our own physical bodies than from external things like wealth and possessions. We are willing to sacrifice hard-earned money in exchange for good health or a beautiful body.

The research team offers a different perspective: The above claim, “We suffer more from our own physical bodies than from external things like wealth and possessions,” may be incomplete. In the contemporary world dominated by technologies and AI, many people are obsessed with materialism, willing to sacrifice their hard-earned money for necessities beyond their daily needs. Technologies designed to satisfy human desires include smartphones, laptops, and tablets etc. People are even willing to go into debt to acquire these objects rather than to enjoy good health or a beautiful body. Today, cosmetic surgery is becoming popular among the general population at all ages and races, who believe that “money can bring all happiness in life, including beauty.” This notion is sometimes contradicted by the Buddhist law of action, stated in the *Cūḷakammavibhaṅga Sutta*.¹²¹ A person can have a beautiful appearance only through the absence of anger, hate, and bitterness.

¹¹⁹ See Somparn Promta, **Time and Space in Theravada Buddhist Philosophy**, (Thai Version), Master of Arts Thesis. Department of Philosophy, (Graduate School: Chulalongkorn University, 1998), p. 7.

¹²⁰ Somparn Promta, **Buddhism and Science**, pp. 66-67.

¹²¹ M.III. 202-206.

*Kammassakā māṇava sattā kammadāyādā kammayonī
kammabandhū kammaṭṭhāraṇā kammaṇ satte vibhajati yadidaṃ
hīnappanītatāyāti.*¹²²

Student, beings are owners of their actions, heirs of their actions; they originate from their actions, are bound to their actions, have their actions as their refuge. It is action that distinguishes beings as inferior and superior.¹²³

It is action that determines the consequences of all beings. Action determines the good and evil of all beings. Action determines the good doers and evildoers. It determines the coarseness and fineness of all beings. The Buddha clearly defined this truth, “This is the way, student, that leads to being beautiful, namely, one is not of an angry and irritable character. . . and does not display anger, hate, and bitterness.”¹²⁴ The law of action suggests here that a person can be beautiful by not being angry. Many people in today’s society are seeking physical happiness through false beliefs, without any Buddhist principles to support them. Thus, the research team’s conclusion is: “Humans suffer from a variety of external material factors, including their physical bodies, various stimuli, wealth and possessions, etc.”

However, Somparn Promta adds *Citta-Niyāma* suggests that the mind is a mysterious, subtle abstraction within the human being. Buddhism calls this mysterious nature “mind.”¹²⁵ The human mind harbors two natures: good and evil. Good nature leads us to good, while evil nature leads us to evil. Good nature is called wholesome mental factors, while evil mental factors are called unwholesome mental factors. There are three main wholesome mental factors: non-greed, non-hatred, and non-delusion. There are also three important unwholesome mental factors: greed, hatred,

¹²² M.III.203.

¹²³ Bhikkhu Ñānamoli and Bhikkhu Bodhi (trs.), **The Middle Length Discourses of the Buddha**, (Oxford: PTS, 2001), p. 1053.

¹²⁴ M.III.204; Bhikkhu Ñānamoli and Bhikkhu Bodhi (trs.), **The Middle Length Discourses of the Buddha**, (Oxford: PTS, 2001), p. 1055.

¹²⁵ See Somparn Promta, **Buddhist Philosophy: Human, Social and Ethical Issues**, (Thai Version), (Bangkok, Thailand: Chulalongkorn University Press, 2009), pp. 13-14.

and delusion.¹²⁶ Theravada Buddhist philosophy suggests that the human mind is believed to possess a characteristic: the ability to record what enters its consciousness.¹²⁷ One of the advantages of understanding *Niyāma* is the variety of baskets that serve to classify different things in nature. We call these baskets “laws of nature.”

b) Method of Examining the *Niyāma*

The contents of the first two laws, *Utu-Niyāma* and *Bīja-Niyāma*, refer to things that can be observed by the senses. The contents of the latter two laws, *Citta-Niyāma* and *Kamma-Niyāma*, refer to things that cannot be perceived by the senses. From this perspective, only *Utu-Niyāma* and *Bīja-Niyāma* can be considered laws in the scientific sense. Meanwhile, *Citta-Niyāma* and *Kamma-Niyāma* are not considered scientific laws because they partly refer to things beyond the senses. These former two Laws are more likely to be scientific theories.

The methods for examining *Niyāma* are: First, *Utu-Niyāma* and *Bīja-Niyāma* are examined using the same methods used to examine laws in science. Second, *Citta-Niyāma* and *Kamma-Niyāma* are examined using the same methods used to examine theories in science. But it must be done carefully by integrating Buddhist principles. Somparn Promtaa’s ideas and explanations on *Niyāma* can be summarized into three distinctive characteristics: (1) The explanatory method emphasizes “laws,” order, consistency, and certainty, in line with the commentaries. (2) The explanation is based on the concept of dependent origination or dependent causation, adhering to the principle of “cause and effect.” And (3) The explanation is based on the principles of scientific “laws” and “theories.” In the modern sciences.

Regarding the translation and English usage of the popular term “Law” (Law of energy, genetic laws, psychic law, etc.), as widely used today, may not be appropriate for at least two reasons:

FIRST: The term does not correspond to its original meaning

¹²⁶ Somparn Promta, **Buddhism and Science**, p. 85.

¹²⁷ Somparn Promta, **Zen Buddhism: An Analytical Study**, (Thai Version), 3rd ed., (Bangkok: Chulalongkorn University Press, 2003), p. 29.

The term “law” generally refers to “legal laws,” which are rules established and enforced by governments or social institutions to regulate human conduct, ensure justice, and maintain order in society. It may refer to “scientific laws” as descriptions of consistent, observable patterns or relationships in nature, usually expressed mathematically, that have been repeatedly confirmed through experimentation and observation. In this sense, the term “law” is likely to be something related to humans, derived from agreements among humans, and established solely for the purpose of enforcing human use to achieve a particular purpose within a particular time period, in a particular place, or situation. Furthermore, such laws are subject to change with the times. Therefore, in this sense, the word “law” does not correspond to the true meaning of the Pali word “*Niyāma*” because *Niyāma* in Buddhism does not refer to any rules, evidence, or mandatory requirements. Rather, it simply refers to “nature.”

SECOND: The term changes from the original scriptures

Original scriptures here refer to the Tipiṭaka and the Commentaries. Looking back through time, studying and interpreting these scriptures, one thing that remains evident is the word used to refer to “*Niyāma*.” From the research, it has been found that the word “*Niyāma*” appears only in two ways when translated from Pali: The Tipiṭaka uses the phrases, “this orderly fixing of things” and “the fixed course of the Dhamma,” while the Commentaries use the word “certainty.” Therefore, the word “law” is far more appropriate for these reasons.

From a study of Thai Scholars’ Perspectives on Natural Laws (*Niyāma*), it was found that the first scholar, Venerable Phra Brahmaganabhorn (P.A.Payutto), elaborated and connected it to various phenomena occurring in everyday life, drawing primarily on the ideas of the commentators. Regarding meaning, he chose the term “laws” to explain, but retained the same essential content as found in both the Tipiṭaka and the commentaries. Regarding the five types of *Niyāma*, Phra Brahmaganabhorn also primarily explains them in accordance with the commentary, but with three additional points that differ from the original: First, the explanation of *Utu-Niyāma*, summarizing its essence as variations due to heat or temperature. For example, the way soil, water, and

fertilizer help trees flourish, the way people cough or sneeze, and the way things decay. Second, the explanation of *Kamma-Niyāma*, as the nature of intention, which is related to ethics. Finally, the example of *Dhamma-Niyāma*, stating that people are subject to birth, aging, illness, and death, as is normal for people in this era to have a lifespan of approximately one hundred years. However, the sixth law, “the law of society,” (*Saṅgama-Niyāma*) was born here at this era. Furthermore, his explanation on *Dhamma-Niyāma* differs from the commentators in the sense that the *Dhamma-Niyāma* in the context of the Bodhisattva’s supernatural events are not mentioned at all. His explanation of the *Dhamma-Niyāma* relies primarily on the principles found in the Tipiṭaka, which only discusses two aspects: Dependent Origination and the Three Characteristics.

Another scholar, Somparn Promta, has three distinctive conceptual characteristics: First, the explanatory method emphasizes “laws,” order, consistency, and certainty, as per the concepts of the commentators. Second, the explanation follows the concept of dependent origination or dependent origination, adhering to the principle of “cause and effect.” Third, the explanation is based on the principles of scientific “laws” and “theories” in science. Both scholars’ explanations draw entirely from the concepts of the commentators, including the reference to the Five Natural Laws (*Niyāma*) in relation to scientific laws and theories. The only difference lies in the details of the examples used.

4.2.2 International Scholars’ Perspectives on Natural Laws (*Niyāma*)

Concepts on *Niyāma* of Scholars Abroad In this research, two people are proposed: (1) C.A.F. Rhys Davids and (2) Ledi Sayadaw, as follows:

1. C.A.F. Rhys Davids

C.A.F. Rhys Davids was one of the first Western scholars to mention the Five *Niyāmas* in her book “Buddhism: A Study of the Buddhist Norm,” published in 1912. The reason for mentioning this is to emphasize that Buddhism, which is in the universe of virtue, any action leads to responsibility for the result of that action according to the order

of natural virtue.¹²⁸ Her view of the Five *Niyāmas* is as follows: “Buddhism looks at all things and calls this organization ‘*Niyāma*’, which is the process of things. She suggests this order, which Buddhism saw in the universe, was called in Pali *niyāma*, that is, going on, process. In it five branches, strands, and phases were discerned: – *kamma-niyāma*, order of act-and-result; *utu-niyāma*, physical (inorganic) order; *bīja-niyāma*, order of germs, or seeds (physical organic order); *citta-niyāma*, order of mind, or conscious life; *dhamma-niyāma*, order of the norm, or the effort of nature to produce a perfect type.”¹²⁹

C.A.F. Rhys Davids, the Five *Niyāmas*:

1) *Kamma-Niyāma* (Action) is a rule related to *kamma* and the consequence of one’s actions.

2) *Utu-Niyāma* (Time and Season) is a law related to seasonal changes and weathering, and a law of non-living matter.

3) *Bīja-Niyāma* (Plant) is a rule related to heredity.

4) *Citta-Niyāma* (Mind) is the law of the will of mind.

5) *Dhamma-Niyāma* (Natural Law) is a pure natural characteristic.

This explanation is similar to that proposed by Ledi Sayadaw, who extended it to the teaching of Vipassana.¹³⁰ The concept of the *Niyāma* of Venerable Ledi Sayadaw will be presented next.

2. Venerable Ledi Sayadaw

Venerable Ledi Sayadaw was a famous Burmese Vipassana monk (lived C. 1846-1923), both for spreading the Dharma and reviving the practice of Vipassana meditation in the typical Burmese way. His

¹²⁸ C.A.F. Rhys Davids, **Buddhism: A Study of the Buddhist Norm**, (London: Williams and Norgate, 1912), pp.118–119, Padmasiri De Silva, **Environmental Philosophy and Ethics in Buddhism**, (London: Macmillan Press, 1998), p. 41.

¹²⁹ C.A.F. Rhys Davids, **Buddhism: A Study of the Buddhist Norm**, (London: Williams and Norgate, 1912), p. 119.

¹³⁰ Sangharakshita Bhikshu, **The Three Jewels**, (Surrey: Windhorse, 1977), pp. 69-70, and in the lecture ‘Karma and Rebirth’, in edited form in, Sangharakshita, **Who is the Buddha?**, (Glasgow: Windhorse, 1994), pp.105-108.

descendants include S.N. Goenka. A book called *Manuals of Buddhism*¹³¹ which is a series of texts that he has compiled, as well as the “*Niyāma-Dīpanī*,” or A Manual of Cosmic Order.

His first interesting piece of evidence is the concept of the *Dhamma-Niyāma*, explaining that this order includes laws of cosmic order, whereby the state of Buddhahood is completely brought to pass and achieved. These Laws bring about the attainment of Bodhi by the great Bodhisatta, namely, the ten Perfections, each of three stages, the five great Renunciations, in the Three-fold Duty, and, at the end of the days, the grappling, while on the Bodhi-seat, with the law of causality, and the perceiving, while in *Jhāna*-concentration with awareness of respiration, the genesis and evanescence of the five aggregates of individuality. By these things, the Buddhas win Buddhahood, hence such matters are called the things of the Law of Nature for Buddhas.¹³² Considering the above statement, it is clear that his *Dhamma-Niyāma* is a concept taken from a commentary that explains supernatural phenomena, such as the shaking of the universe, as the certainty of a bodhisattva.

The 5 types of Orders (*Niyāma*) according to his explanation are as follows:

1) The Caloric Order (*Utu-Niyāma*), the order of things in relation to climatic conditions.

2) The Germinal Order (*Bīja-Niyāma*), the order of things in relation to germinal condition.

3) The Moral Order (*Kamma-Niyāma*), the order of things in relation to moral conditions.

4) The Psychological Order (*Citta-Niyāma*), the order of psychogenesis.

¹³¹ Ledi Sayadaw, *Manuals of Buddhism*, (Bangkok: Mahamakut Press, 1978).

¹³² Mahāthera Ledi Sayadaw, *The Manuals of Dhamma*, Trs. by Sayadaw U Nyana, Dr. Beni Barua, U Sein Nyo Tun, U Saw Tun Teik, (Maharashtra: Vipassana Research Institute, 2011), p. 93.

5) The Natural Phenomenal Sequence (*Dhamma-Niyāma*), the natural order of things (other than the above-mentioned.)¹³³

Regarding the rendering word as “Natural Phenomenal Sequence” by S.Z. Aung, Venerable Ledi Sayadaw, views that it is a good one, but it is not. He thinks that it covers the wide meaning of the term, dhamma. Here, dhamma is used to mean the whole cosmos or universe (the 31 stages or *bhūmiyo*) with its inhabitants, both animate and inanimate. Hence, the *Dhamma-Niyāma* is the whole ordered system of the cosmos. And the first four *Niyāmas* are only the specific orders specialized from it, as each of them is universally predominant among many other orders. So whatever order remains unspecified or unspecialized, it comes under the heading of the *Dhamma-Niyāma*.¹³⁴ The order in which the *Niyāma* of Venerable Ledi Sayadaw was presented differs from that of the commentators and other scholars already mentioned. The following table shows a comparison of the Fivefold *Niyāma* Sequences between Commentaries and the Modern Scholars:

Suttanta Piṭaka Aṭṭhakathā	C.A.F	Abhidhamma Piṭaka Aṭṭhakathā	Modern Scholars	
			PA Payutto	Somparn Promta
1. <i>Kamma-Niyāma</i>		<i>Bīja-Niyāma</i>	<i>Utu-Niyāma</i>	<i>Utu-Niyāma</i>
2. <i>Utu-Niyāma</i>		<i>Utu-Niyāma</i>	<i>Bīja-Niyāma</i>	<i>Bīja-Niyāma</i>
3. <i>Bīja-Niyāma</i>		<i>Kamma-Niyāma</i>	<i>Citta-Niyāma</i>	<i>Kamma-Niyāma</i>
4. <i>Citta-Niyāma</i>		<i>Dhamma-Niyāma</i>	<i>Kamma-Niyāma</i>	<i>Citta-Niyāma</i>
5. <i>Dhamma-Niyāma</i>		<i>Citta-Niyāma</i>	<i>Dhamma-Niyāma</i>	<i>Dhamma-Niyāma</i>

Table 4.7 Comparative Table of the Fivefold *Niyāma* Sequences between Commentaries and the Modern Scholars

In addition to the 5 Orders mentioned above, there is also very interesting evidence. In the book *Niyāma-Dīpanī*, he proposes more types of *Niyāma* that are very unconventional. In other words, there are 8 types as follows:

¹³³ Ibid., pp. 93, 124.

¹³⁴ Ibid., p. 124.

6) Buddha Order (*Buddha-Niyāma*) is the natural law of the Buddha. Whenever the bodhisattva has cultivated, the bodhisattva is complete. Attaining bodhicitta led to the complete attainment of arhat samma buddha at the bodhi throne. These phenomena that occur naturally are called the Buddha's natural law, which shows that the Buddha's enlightenment was not caused by chance.¹³⁵

7) Disciple Order (*Sāvaka-Niyāma*) It is the order of precepts, etc., of the disciples, comprising the laymen, devas and Brahmās who have received deliverance from any one of the many Buddhas, surpassing in number the sands of the river Ganges, who have appeared in the cycles of aeons that have no knowable beginning.¹³⁶

8) Birth Order (*Jāti-Niyāma*) is the natural law of birth, quoting from the “Vāseṭṭha Sutta” that all plants and animals are classified according to the characteristics of their species, but humans are not classified as such. Human beings are classified by *kamma*, as the Buddha says: A person cannot be called a Brahmin because of his birth; he cannot be called a non-Brahmin because he is born. But to be called a Brahmin because of *kamma*, to be called not a Brahmin because of *kamma*, to be called a farmer because of *kamma*, to be called an artist, to be a merchant, to be a servant, because of *kamma*, to be called a thief, to be a professional soldier, to be a priest, even to be a king, because of *kamma*. Therefore, the *Jāti-Niyāma* is clearly different from the *Bīja-Niyāma* and the *Kamma-Niyāma* in the sense of Venerable Ledi Sayadaw, and can be separated into another Order.

The original purpose of explaining the Fivefold *Niyāma* in the style of Venerable Ledi Sayadaw is not to explain the law of action specifically, but to illustrate the law of nature as an alternative to the cult that believes in the existence of God. This interpretation seems logical. Hinduism, which is a devotee, began to have the work of “Upanishads” and “Bhagavad-gītā” established as a solid foundation.¹³⁷

¹³⁵ Ibid., p. 130.

¹³⁶ Op. Cit.

¹³⁷ Dh. Dhīvan, **The ‘Five Niyāmas’, Sangharakshita, and the Problem of Karma:** 20.

The presentation of the Eightfold *Niyāma* may have some flaws. This is because the three new rules he added overlap with the original Eightfold *Niyāma*. A careful examination reveals that *Buddha-Niyāma* is the *Dhamma-Niyāma* according to the commentaries. *Sāvaka-Niyāma* is the *Sammatta-Niyāma* in the Tipiṭaka. And *Jāti-Niyāma* is the *Kamma-Niyāma*. The concept of the Eightfold *Niyāma* of Venerable Ledi Sayadaw is presented using a chart, as follows:

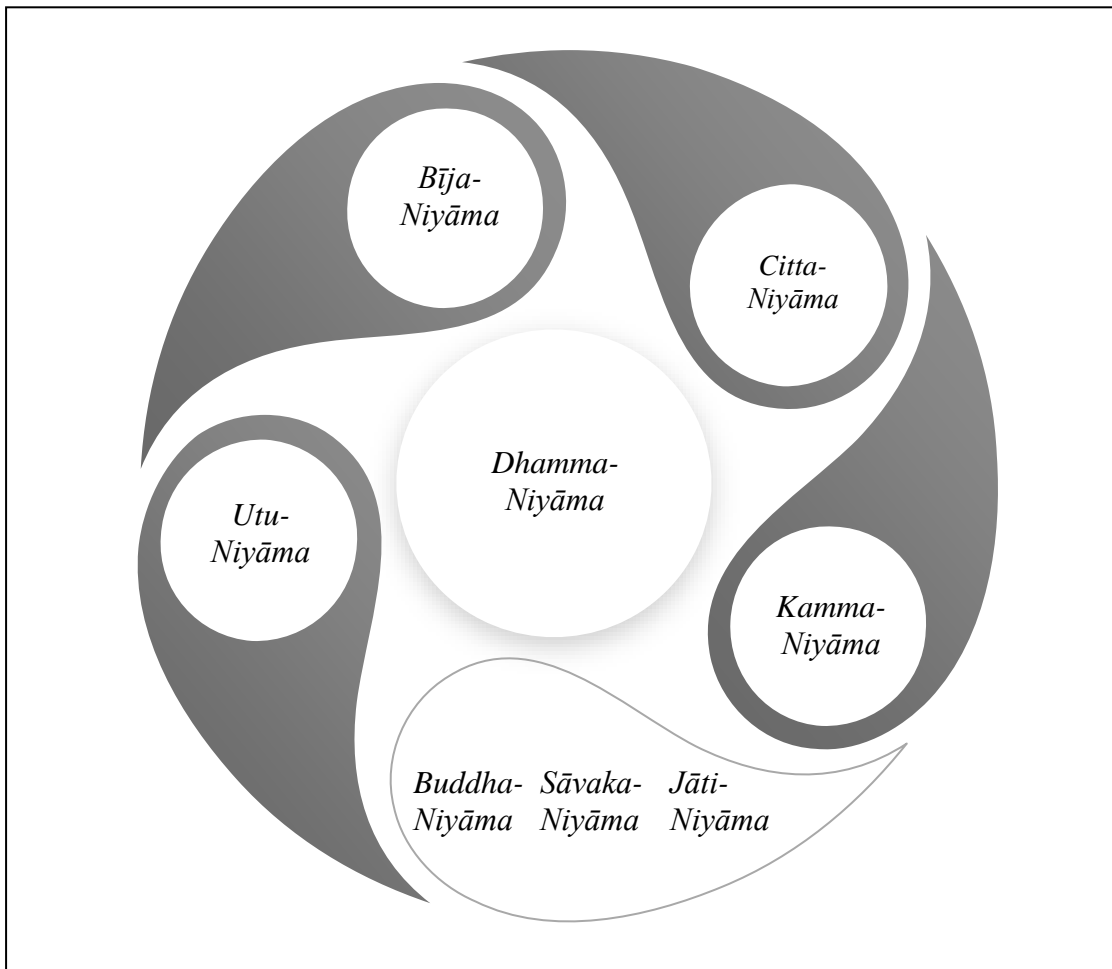


Chart 4.6 The Eightfold *Niyāma* of Venerable Ledi Sayadaw

From a study of International Scholars' Perspectives on Natural Laws (*Niyāma*), it was found that C.A.F. Rhys Davids explained the Five *Niyāmas* in line with the conservative view of the commentators. Meanwhile, Ledi Sayadaw attempted to expand the categories of *Niyāma* to eight, adding three new orders to the original five: Buddha Order (*Buddha-Niyāma*), Disciple Order (*Sāvaka-Niyāma*), and Birth Order

(*Jāti-Niyāma*), respectively. The first five *Niyāmas* correspond to the original explanation given by the commentaries. The next three items are newly established *Niyāmas*. These concepts of *Niyāma* in the modern world open up a new perspective on the study of the natural laws of humanity. They are suitable for the present era of people who seek religious knowledge that can be applied practically in their daily lives.

The researchers conclude by presenting a table summarizing the development of the concepts on *Niyāma*, to provide a detailed comparison of the differences across the teachings.

<i>Niyāmas</i>	Tipiṭaka	<i>Pañcavidha-niyāma</i>		Ven. Phra Brahmagunabhorn (P.A.Payutto)	Somparn Promta	C.A.F. Rhys Davids	Ven. Ledi Sayadaw
		Suttanta Piṭaka Aṭṭhakathā	Abhidhamma Piṭaka Aṭṭhakathā				
Caloric Law (<i>Utu-Niyāma</i>)	-	Pick flowers and fruits by cutting them once, wind, sun, rain, and lotus blooms	The blossoming, fructifying and sprouting of trees in seasons	Law of energy, weather, seasons, cough, sneeze, heat, temperature	Law about inanimate objects	Law related to seasonal changes and weathering (non-living matter)	The order of things in relation to climatic conditions
Germinal Law (<i>Bīja-Niyāma</i>)	-	Wheat, sweetness, bitterness, etc., naturally arise from its source	Similar modes of fruition of plants, e.g., gram's top shoots, southern creeper, etc.	Law of heredity: a specific plant produces a specific fruit	Law about living things (organisms)	Rule related to heredity	The order of things in relation to the germinal condition
Psychical Law (<i>Citta-Niyāma</i>)	-	Relationship between consciousness and mental factors	The Abhidhamma explanation of the duty of the consciousness	Psychic law about the functioning of the mind	Law about minds	Law of the will of the mind	The order of psychogenesis
Moral Law (<i>Kamma-Niyāma</i>)	-	The production of deeds, good or bad	<i>Tihetuka, Duhetuka kamma</i> give suitable <i>kamma</i> results	Moral law about human behavior	Law about the effects of good and bad actions	Rule related to <i>kamma</i> and the consequences of one's actions	The order of things in relation to moral conditions
Natural-phenomenal Law (<i>Dhamma-Niyāma</i>)	<ul style="list-style-type: none"> • Dependent Origination • The Three Characteristics 	The trembling of the ten thousand worlds when the Bodhisattvas descended into the womb of their mothers	The earthquake each: - Bodhisattas taking conception, being born, enlightenment, turning the Dhamma wheel, surrender of life, and passing away	Law of cause and effect: The interrelationship of all things	The main law that covers all the remaining laws	Pure natural characteristics	The natural order of things
Rightness Law (<i>Sammatta-Niyāma</i>)	<ul style="list-style-type: none"> • The 37 Factors of Enlightenment • The Noble Path 	-	-	-	-	-	-
Wrongness Law (<i>Micchatta-Niyāma</i>)	<ul style="list-style-type: none"> • The five immediacy-deeds 	-	-	-	-	-	-
Social Law (<i>Saṅgama-Niyāma</i>)	-	-	-	The Law established by humans as agreements to regulate human behavior	-	-	-
Buddha Law (<i>Buddha-Niyāma</i>)	-	-	-	-	-	-	Natural Laws of Buddha
Disciple Law (<i>Sāvaka-Niyāma</i>)	-	-	-	-	-	-	The Natural Law of Disciples
Birth Law (<i>Jāti-Niyāma</i>)	-	-	-	-	-	-	The natural law of birth

Table 4.8 A Developmental Model of the Natural Laws (*Niyāma*) in Theravāda Buddhism

4.2.3 A Developmental Model of the Natural Laws (*Niyāma*) in Theravāda Buddhism

The Law of Nature is a process of holistic learning about the nature. The learning process begins with faith controlling faculty (*saddhindriya*)¹³⁸, before wisdom, or understanding, arises. Venerable Ajahn Brahmali spoke of this matter as follows:

Buddhist “Learning process” begins with faith. It is the case, of course, that all learning must be based on a degree of faith in the teacher and/or the education system. Trust is therefore an important aspect of education. The Buddhist learning process also emphasizes reflection, which suggests that rote learning is at best only one aspect of education, especially in a literary as opposed to oral culture. Finally, the Buddhist learning process culminates in the realization of the truth, which goes beyond what is normally expected in a secular education system, but which nonetheless gives an indication of the importance of deep learning.¹³⁹

The effort to know nature is a learning process in Buddhism. The *sikkhā*¹⁴⁰ principle, training in higher morality, mentality, and wisdom, best communicates the matter of sustainable education. Venerable Ajahn Brahmali viewed Natural Laws as a sustainable education. “This would include education in ethics, psychology, harmonious living, conflict resolution, compassion, and any other topics that promote personal as well as social well-being.”¹⁴¹ The reason Buddhism can claim to be enduring is because the goal of the training is to become a Noble Individual, someone who can deal intelligently with “suffering” (*dukkha*)¹⁴² such as birth, ageing, death, etc. Somparn Promta argues that the learning process in Buddhism means an activity performed by a person as a habit to prevent suffering from happening in the life of the person themselves. Learning has

¹³⁸ S.V.191.

¹³⁹ Interview with Venerable Ajahn Brahmali, Theravāda Buddhist monk, Bodhinyana Buddhist Monastery, Australia, February 1, 2024.

¹⁴⁰ D.III.220, A.I.229.

¹⁴¹ Interview with Venerable Ajahn Brahmali, Theravāda Buddhist monk, Bodhinyana Buddhist Monastery, Australia, February 1, 2024.

¹⁴² Vin.I.9, S.V.421, Vbh.99.

to be done all the time, and it is a lifelong process¹⁴³ When suffering is permanently alleviated, the goal of sustainable education is truly achieved. To the question of what goals can be achieved by learning from nature? Somparn Promta answered, at the societal level, learning the nature can make the lives of people in society happy and have a quality life, both physical and spiritual. At the ultimate level, learning the nature can lead to the ultimate goal of Buddhism is the cessation of suffering.¹⁴⁴

Regarding the natural laws (*niyāma*) in Theravāda Buddhism, the inventor of the law was not the creator of the universe; the discoverer of the law was the Buddha. The law itself is a law statement formulated in the language of Pali. The Fivefold *Niyāma*,¹⁴⁵ according to the commentary, is the most widespread. Its concept is of great help in integrating with natural and environmental dimensions. Sanu Mahatthanadull has demonstrated:

The Fivefold *Niyāma* serves as a framework to expound the phenomena of a rapidly degraded environment. Each facet of the degradation is a natural linking network, with the main cause from human beings. Starting from the world's overall heat degradation (*utu-niyāma*); degradation of heredity caused by humans' intelligent innovation of genetic engineering in crops and animals (*bīja-niyāma*); mental degradation that has been overlooked in this era (*citta-niyāma*); moral or action degradation to reduce humans to a lower-human (*kamma-niyāma*), and natural and environmental degradation in which people live their lives (*dhamma-niyāma*).¹⁴⁶

Buddhism's Five *Niyāmas* can be closely integrated with various pure and applied sciences, including physics, biology, psychology, and ecology. This is an example of how the *Niyāma* framework can be

¹⁴³ Interview with Prof. Dr. Somparn Promta, Director of Center for the Study of Buddhist Philosophy, MCU, Thailand, February 1, 2024.

¹⁴⁴ Interview with Prof. Dr. Somparn Promta, Director of Center for the Study of Buddhist Philosophy, MCU, Thailand, February 1, 2024.

¹⁴⁵ “*Niyāmo ca nāmesa kammaniyāmo utuniyāmo bījanīyāmo cittanīyāmo dhammanīyāmoti pañcavidho*” Mahāpadāna-Sutta-Vaṇṇanā- DA. II.432.

¹⁴⁶ Mahatthanadull, Sanu. “**Buddhist Response to Environmental Degradation under Conceptual Framework of the Five *Niyāma***”. Proceedings Document. The 1st MCU International Academic Conference (MIAC) on Buddhism and World Crisis. Graduate School. May 29. 2015. BKK: MCU Printing: 65-78.

interpreted in the broadest context, encompassing humans, animals, plants, living things, and climate in the broader ecological environment. Regarding the five types of *Niyāmas*, Phra Brahmagunabhorn's explanations follow the same principle as the commentators', but with three additional additions that differ from the original: First, his explanation of *Utu-Niyāma* summarizes its essence as variations due to heat or temperature. For example, soil, water, and fertilizer help trees flourish, a person's coughing or sneezing, and the decay of all things. Second, his explanation of *Kamma-Niyāma*, which is the process of intention, is related to ethics. Finally, he gives an example of *Dhamma-Niyāma*, stating that people are naturally subject to birth, aging, illness, and death, and that the lifespan of people in this era is approximately one hundred years. Furthermore, Phra Brahmagunabhorn's *Dhamma-Niyāma* differs from the commentators', refusing to mention *Dhamma-Niyāma* in the context of the supernatural events of the Bodhisattva. His explanation is based primarily on the principles found in the Tipiṭaka, addressing only two aspects: Dependent Origination and the Three Characteristics of Character.

Another scholar, Professor Dr. Somparn Promta, has three distinctive conceptual characteristics: First, the explanatory method emphasizes "laws," order, consistency, and certainty, in line with the concepts of the commentaries. Second, the explanation follows the meaning of dependent origination, adhering to the principle of "cause and effect." Third, the explanation is based on the principles of scientific "laws" and "theories" in science. Both scholars have explanations rooted in the ideas of the commentaries. They also reference the Five *Niyāma* principles with scientific laws and theories. The only difference lies in the details of the examples used.

Phra Dhammakosācāra shares the idea that the *Dhamma-Niyāma* is a natural law that encompasses the other four Laws. They are the Laws that govern the materiality and mentality, divided into two groups: (1) The first group, *Utu-Niyāma* and *Bīja-Niyāma*, are physical laws, (2) The

second group, *Citta-Niyāma* and *Kamma-Niyāma*, are abstract laws.¹⁴⁷ C.A.F. Rhys Davids explains the types of *Niyāma* along the lines of the five types of commentaries, but defines them as “orders”. Ledi Sayadaw expands the five types to eight *Niyāmas*.

The evolution of concepts on *Niyāma* implies a gradual transformation from one era to the next, from one generation of concepts to the next. These changes are crucial, both for the correct application of the original teachings and for the attitude toward the adjusted teachings. As Buddhism enters its third millennium, the detailed explanations of the Dhamma principles need to be refined to keep pace with the times, while the essence of the teachings must remain unchanged. This depends on all of us Buddhists.

Theravada Buddhism’s concepts of natural laws have a significant turning point, evident in the commentaries. The classification of *Niyāma* “from one to five” formed the basis for the adoption of the new concept of Natural Laws in later teachings. Furthermore, both Thai and international scholars’ explanations of Natural Orders were conducted in a social context different from those of earlier eras. This has resulted in a proliferation of examples to support their explanations. Perhaps, it is difficult to discern which viewpoints are correct and which are incorrect, as there are varying interpretations. Due to these different interpretations, the types of Natural Orders have constantly shifted, adapting to the times and individual interpretations, “from five to six” (the concept of Phra Brahmaganabhorn). And “from five to eight” (the concept of Ledi Sayadaw). These “additional” developments raise the question: “How many types of definitions will be added in the future?” What is Theravada Buddhism’s concept for this answer? We must all contribute to the answer and analyze it together.

In terms of meaning, natural laws have multiple implications in Theravada Buddhism, including: “certainty of nature,” “natural orders,”

¹⁴⁷ See in Phra Thepsophon (Prayoon Dhammacitto) et al., **Buddhism and Modern World Science**, (Thai Version), 2nd ed., (Bangkok: MCU Press), 2005; Phra Dhammakosācāra (Prayoon Dhammacitto), **Integrative Method: Buddhism & Modern Sciences**, (Thai Version), (Bangkok: MCU, 2010), p. 47.

“rules of nature,” etc. Peter Mittelstaedt and Paul A. Weingartner have given their view on the mundane laws of nature as follows:

A law of nature, the things (with their properties and relations) described or ordered by the law are things of nature, i.e. objects of the real world (universe), the inventor of the (true) law can be the creator of the universe, the discoverer(s) of the law are human persons (scientists) and the law itself is a law statement formulated in the language of some of the natural sciences.¹⁴⁸

Venerable Ajahn Brahmali emphasized that to discover the most fundamental natural laws according to Buddhism, we should first and foremost consult the Suttas, the earliest stratum of Buddhist literature.¹⁴⁹ The issue of meaning used is another point worth keeping an eye on. In the Tipiṭaka, the phrases “this orderly fixing of things”¹⁵⁰ and “the fixed course of the Dhamma”¹⁵¹ were used with *Dhamma-Niyāma*. Venerable Ajahn Brahmali affirmed that in the Suttas, natural law is sometimes expressed through the term *niyāma*, but more commonly through the word *dhamma*, especially *dhammatā*.¹⁵² Later, in the commentarial era, the term “certainty” was generally used in its place. Although some traces of this can still be found, scholars both domestically and internationally in Thailand have shifted to using the terms “Natural Laws” or “Natural Orders,” which can often be seen depending on the translators.

Somporn Promta offers a perspective that Buddhists in general do not know that there is a teaching concerning the laws of nature in Buddhism. The concept of natural laws appears in some specific texts that are known only to Buddhist scholars.¹⁵³ Soraj Hongladarom views that

¹⁴⁸ Peter Mittelstaedt, Paul A. Weingartner, **Laws of Nature**, (Heidelberg: Springer, 2005), p. 6.

¹⁴⁹ Interview with Venerable Ajahn Brahmali, Theravāda Buddhist monk, Bodhinyana Buddhist Monastery, Australia, February 1, 2024.

¹⁵⁰ F.L. Woodward (tr.), **The Book of the Gradual Sayings**, Vol.I (Ones, Twos, Threes), p. 264.

¹⁵¹ Bhikkhu Bodhi (tr.), **The Connected Discourses of the Buddha A New Translation of the Saṃyutta Nikāya**, Vol. I, 2 vols. set, p. 551.

¹⁵² Interview with Venerable Ajahn Brahmali, Theravāda Buddhist monk, Bodhinyana Buddhist Monastery, Australia, February 1, 2024.

¹⁵³ Interview with Prof. Dr. Somporn Promta, Director of Center for the Study of Buddhist Philosophy, MCU, Thailand, February 1, 2024.

natural laws are certainties in nature that can be described in a clear and succinct sentence. In physics, this can be described using mathematical formulas.¹⁵⁴ Father Dr. Daniele Mazza has given a view of the non-creator natural laws:

Natural laws are not “laws” in the sense of being imposed by a divine legislator, but rather intrinsic causal regularities, the way things necessarily unfold given specific conditions. At its core, *Niyāma* affirms that the universe is not random or subject to the whims of a creator but is instead governed by intelligible, impersonal processes.¹⁵⁵

Those are laws that are considered conditioned, not arbitrary¹⁵⁶

To sum up, Natural laws refer to the orderly fixing of things, the fixed course of nature, natural laws, natural orders, or certainties of nature, that most realistically and accurately explain various natural phenomena, such as human, animal, insects, plant, fruits, trees, flowers, objects, seasons, world, and universe. The objective (*paravisaya*) laws that are present in the world without any law-giver or law-maker. They are inherent within the world.

Therefore, to illustrate the development of the idea, especially its meanings and types, the next table presents the Development of Definitions and Types of *Niyāma*:

¹⁵⁴ Interview with Prof. Dr. Soraj Hongladarom, Lecturer of M.A. in Religion and Philosophy (International Program), IBSC, MCU, Thailand, May 12, 2024.

¹⁵⁵ Interview with Father Dr. Daniele Mazza, Buddhist scholar, a member of the Pontifical Institute for Foreign Missions (PIME), Italy, May 12, 2024.

¹⁵⁶ Interview with Asst. Prof. Dr. Joanna Gruszewska, Centre for Comparative Studies of Civilisations, Faculty of Philosophy, Jagiellonian University in Kraków, Poland, May 12, 2024.

	Pāli Canon	Commentary	Modern Scholars	
			Domestic	Foreign
Meaning	<ul style="list-style-type: none"> This orderly fixing of things The fixed course of the Dhamma 	Certainty	Law / Order	Law / Order
Type	<i>Dhamma-Niyāma</i>	<i>Bīja-Niyāma</i> <i>Utu-Niyāma</i> <i>Kamma-Niyāma</i> <i>Dhamma-Niyāma</i> <i>Citta-Niyāma</i>	<i>Utu-Niyāma</i> <i>Bīja-Niyāma</i> <i>Citta-Niyāma</i> <i>Kamma-Niyāma</i> <i>Dhamma-Niyāma</i> <i>Saṅgama-Niyāma</i>	<i>Utu-Niyāma</i> <i>Bīja-Niyāma</i> <i>Citta-Niyāma</i> <i>Kamma-Niyāma</i> <i>Dhamma-Niyāma</i> <i>Buddha-Niyāma</i> <i>Sāvaka-Niyāma</i> <i>Jāti-Niyāma</i>
Total	1	5	6	8

Table 4.9 The Development of Definitions and Types of *Niyāma*

The development of this idea has continued, rooted in the Tipiṭaka. It experienced a major shift during the Commentary Era, when the concept of “*Niyāma*” was interpreted in a more elaborate way. The contemporary academic era today is a period of its peak prosperity. This evolutionary process resulted in changes in the meaning, types, and explanations. It may be difficult to pinpoint exactly what is right and what is wrong. However, it is the academic diversity in “Buddhist studies” that challenges scholars and enthusiasts to analyze and distinguish further for the benefit of religious studies. The next table shows the various types of Natural Laws:

No.	Causes									
		1. <i>Bīja-Niyāma</i>	2. <i>Utu-Niyāma</i>	3. <i>Kamma-Niyāma</i>	4. <i>Dhamma-Niyāma</i>	5. <i>Citta-Niyāma</i>	6. <i>Saṅgama-Niyāma</i>	7. <i>Buddha-Niyāma</i>	8. <i>Sāvaka-Niyāma</i>	9. <i>Jāti-Niyāma</i>
1	Pāli Canon	-	-	-	✓	-	-	-	-	-
2	Commentary	✓	✓	✓	✓	✓	-	-	-	-
3	Phra Brahmaganabhorn	✓	✓	✓	✓	✓	✓	-	-	-
4	Somporn Promta	✓	✓	✓	✓	✓	-	-	-	-
5	C.A.F. Rhys Davids	✓	✓	✓	✓	✓	-	-	-	-
6	Ledi Sayadaw	✓	✓	✓	✓	✓	-	✓	✓	✓

Table 4.10 Various Types of Natural Laws

From the table, it can be seen that no classifications exist within the Tipiṭaka. “Types of Natural Laws” were added during the period when commentaries reached their peak and had a significant influence on society at that time. In terms of the content, *Niyāmas* are a major principle with considerable detail and substance, allowing for the expansion of the five types mentioned above. These Five *Niyāmas* are widely popular among Buddhist scholars and the general public. One thing that must be acknowledged about the commentaries’ concepts is that the expansion into Fivefold *Niyāma* represents a holistic view of life, based on the idea that life is not solely dependent on the very popular Law of *kamma*. It also depends on other environmental Laws, which directly support the “*Dhamma-Niyāma*” in the Tipiṭaka, which suggests cultivating wisdom to thoroughly consider phenomena both within and around the human body. Therefore, commentators have attempted to offer *Niyāmas* from other perspectives to further explain the world in all dimensions. The Natural Laws (*Niyāma*) are therefore a broad principle and conceptual framework that encourages all humans to cultivate wisdom in viewing things in the world without assuming that all outcomes in life and the world are solely caused by action (or any single law). There are also other Natural Laws to consider, arriving at a conclusion that is as close to nature as possible.

The advancement of science in the past is different from the present. Today’s science has continuously evolved, reaching its peak maturity in line with the rapidly changing social context. The *Niyāma* reflects the evolution of human thought in each era. It is therefore an attempt to explain phenomena occurring in the social context of each era. All the interpretations of the past discussed in this research may be widely accepted. In the present era, it must be acknowledged that attempts to interpret new developments in the present era are based on traditional theories and frameworks of the past. This aims to present new knowledge and, at the same time, to preserve and prevent unintentional distortions of Buddhist teachings or a false doctrine (*Saddhammapaṭirūpa*). Many new interpretations will certainly emerge in the future. Teaching development is a natural continuation. Therefore, the most important aspect is development that does not forget the original concepts. The new and the old must be integrated in the most balanced way. The only reason for

presenting such A Developmental Model of the Natural Laws (*Niyāma*) in Theravāda Buddhism is to reconcile all the essential ideas from the Tipitaka, commentaries, and contemporary views through “reorganization.”¹⁵⁷ is the primary purpose of this research. Neither “cut out” to make them shorter nor “add on” to make them longer is needed. In other words, it preserves the doctrine’s integrity while allowing for scholarly developmental interpretation. Father Daniele Mazza supports this idea, saying:

We should suggest a new way of grouping the *Niyāmas* that avoids both the rigidity of multiplying categories and the risk of distorting the original meaning of the term. Instead of treating them as five or even more separate “laws.” Such a regrouping remains faithful to canonical usage, while avoiding the tendency either to over-systematize or to dilute the concept with categories that reflect social convention rather than natural law.¹⁵⁸

The Threefold Natural Law (*Niyāma*), by applying the same definition as used in the Tipitaka, is derived from the *Dhamma-Niyāma* in the Tipitaka, but does not separate *Utu-Niyāma* and *Bīja-Niyāma* as defined by the commentaries. This is because the research team believes that phenomena in human life do not require excessive reliance on multiple overlapped laws. Such laws should be concise, comprehensive, and, importantly, sustainable. Therefore, the research team presents the Threefold Law (*Niyāma*) based on the main concept of meaning as found in the Tipitaka, which is “the fixed course of the Dhamma,” divided into three categories: (1) First Law, The Fixed Course of the *Kamma* (*Kamma-Niyāma*), (2) Second Law, The Fixed Course of the *Dhamma* (*Dhamma-Niyāma*), and (3) Third Law, The Fixed Course of the *Citta* (*Citta-Niyāma*). The details are as follows:

¹⁵⁷ *Satthu-gāravatā; Dhamma-gāravatā; Saṅgha-gāravatā; Sikkhā-gāravatā; Appamāda-gāravatā; and Paṭisanthāra-gāravatā.* A.III.330.

¹⁵⁸ Interview with Father Dr. Daniele Mazza, Buddhist scholar, a member of the Pontifical Institute for Foreign Missions (PIME), Italy, May 12, 2024.

1. First Law, The Fixed Course of the *Kamma* (*Kamma-Niyāma*)

The fixed course of the *kamma*, the first law, refers to the natural law of action and its fruitions. The mind is one of the components of the body that is related to human actions. The fixed course of the *kamma* thus describes human actions and their consequences in the case of phenomena related to the mind, but in a separate context to provide greater clarity, particularly regarding the bearing of *kamma*'s fruits.

In the realm of form and name, the fixed course of the *kamma* governs all these things, and “intention” is the key that unlocks all the hidden secrets. In Nibbedhika Sutta, A Penetrative Discourse, The Buddha said that intention is action, “*cetanāhaṃ bhikkhave kammam vadāmi cetayitvā kammaṃ karoti kāyena vācāya manasā.*”¹⁵⁹ “Monks, I say that determinate thought is action. When one determines, one acts by deed, word or thought.”¹⁶⁰ In this world where human intention (*cetana*) controls the endless cycle of birth and death in *saṃsāra*, the fixed course of the *kamma* is therefore the most important law for learning one's own actions and the consequences of those actions. Elizabeth June Harris supports this idea:

The natural laws govern human existence and the cosmos, which are not laid down by a law-maker. The fixed course of the *kamma* [*Kamma-Niyāma*] is perhaps most important, governing all volitional action. Humans are utterly responsible for their actions and for the state the world now finds itself in.¹⁶¹

Venerable Ajahn Brahmali emphasizes the importance of *Kamma-Niyāma*, stating, “All spiritual growth depends on morality.”¹⁶² It provides the base of the moral universe at the individual and the larger

¹⁵⁹ A.III.414.

¹⁶⁰ E. M. Hare (tr.), *The Book of the Gradual Sayings* (Anguttara-Nikāya), Vol. III (The Books of the Fives and Sixes), (London: PTS, 1973), p. 294.

¹⁶¹ Interview with Assoc. Prof. Dr. Elizabeth June Harris, Honorary Senior Research Fellow, University of Birmingham, UK, February 1, 2024.

¹⁶² Interview with Venerable Ajahn Brahmali, Theravāda Buddhist monk, Bodhinyana Buddhist Monastery, Australia, February 1, 2024.

scale.¹⁶³ Mark Francis Hoolahan agrees. One example that illustrates the consequences of human irresponsibility is the unethical destruction of the environment. The main cause comes from defilement (*kilesa*)¹⁶⁴ that dominates human intentions.

At the moment, our volitional action is harming Nature. Nature is suffering because we are acting out of craving, fueled by greed, hatred, and delusion. We mine the seas for fish in an unsustainable way. Through continuing to burn fossil fuels, we are contributing to the melting of glaciers essential to human flourishing, and have already created the conditions for more frequent severe weather events, which are destroying human and animal lives.¹⁶⁵

Therefore, “volitional action” (*cetanā*)¹⁶⁶ is the essential element underlined in this law to perform any action that has a positive or negative impact on nature and the environment. This natural law works similarly to the laws of physics in terms of the fixedness. “Our volitional thoughts generate energy that leads to specific consequences. *Kamma-Niyāma* operates as a natural law, akin to gravity, functioning independently of any divine intelligence.”¹⁶⁷ Viewed by Sanjoy Barua Chowdhury. The *Kamma-Niyāma* is a cause and effect of action. Clearly well established by the commentator.¹⁶⁸ Elizabeth June Harris views:

The fixed course of the *kamma* can give us some hope in that, when human action changes and becomes less self-centered and fueled by

¹⁶³ Interview with Dr. Mark Francis Hoolahan, Assistant Managing Editor, Office of Academic Journal Administration, President’s Office, KMITL, Thailand, May 12, 2024.

¹⁶⁴ *Lobha, dosa, moha, māna, diṭṭhi, vicikicchā, thīna, uddhacca, ahirika, anottappa.* Vbh.391.

¹⁶⁵ Interview with Assoc. Prof. Dr. Elizabeth June Harris, Honorary Senior Research Fellow, University of Birmingham, UK, February 1, 2024.

¹⁶⁶ *Cetanā, sabbacitta-sadharana-cetasika* (universal mental factors). Comp.94.

¹⁶⁷ Interview with Dr. Sanjoy Barua Chowdhury, College of Religious Studies, Mahidol University, Thailand, May 12, 2024.

¹⁶⁸ Interview with Prof. Dr. Soraj Hongladarom, Lecturer of M.A. in Religion and Philosophy (International Program), IBSC, MCU, Thailand, May 12, 2024.

short-term, craving-driven goals, then the fruits change and the world becomes a better place for humans and all living beings.¹⁶⁹

Kamma-Niyāma is therefore the fixed course of the *kamma* regarding human action in all dimensions driven by intention.

2. Second Law, The Fixed Course of the *Dhamma* (*Dhamma-Niyāma*)

The fixed course of the *Dhamma*, the second law, refers to the natural law of dependent origination (*paṭiccasamuppāda*)¹⁷⁰ and the three characteristics (*tilakkhaṇa*),¹⁷¹ including the extraordinary phenomena of the Bodhisattva and the Buddha. It covers other laws, such as *Sammatta-Niyāma*, *Micchatta-Niyāma*,¹⁷² *Bīja-Niyāma*, *Utu-Niyāma*, *Saṅgama-Niyāma*,¹⁷³ *Buddha-Niyāma*, *Sāvaka-Niyāma*, and *Jāti-Niyāma*¹⁷⁴ respectively.

Venerable Ajahn Brahmali views the fixed course of the *Dhamma*, “The teaching of dependent origination, *Dhamma-Niyāma*, shows how ignorance or delusion is the source of suffering in our lives. By reducing ignorance and delusion, we are reducing suffering.”¹⁷⁵ It also includes rebirth [*punabhava*], which, when accepted, changes how we think about our lives and existence in general.”¹⁷⁶ Soraj Hongladarom agrees that, “This is the law about phenomena – things must follow the course of causal relations.”¹⁷⁷

¹⁶⁹ Interview with Assoc. Prof. Dr. Elizabeth June Harris, Honorary Senior Research Fellow, University of Birmingham, UK, February 1, 2024.

¹⁷⁰ Paccaya Sutta. S.II.25.

¹⁷¹ Uppādāya Sutta. A.I. 285.

¹⁷² Kv.II.480.

¹⁷³ Bhikkhu P.A. Payutto (Somdet Phra Buddhaghosacariya), **Buddhadhamma: The Laws of Nature and Their Benefits to Life**, 4th Ed. Tr. by Robin Philip Moore, p. 393.

¹⁷⁴ Mahāthera Ledi Sayadaw, **The Manuals of Dhamma**, Trs. by Sayadaw U Nyana, Dr. Beni Barua, U Sein Nyo Tun, U Saw Tun Teik, p. 130.

¹⁷⁵ Interview with Venerable Ajahn Brahmali, Theravāda Buddhist monk, Bodhinyana Buddhist Monastery, Australia, February 1, 2024.

¹⁷⁶ Interview with Venerable Ajahn Brahmali, Theravāda Buddhist monk, Bodhinyana Buddhist Monastery, Australia, February 1, 2024.

¹⁷⁷ Interview with Prof. Dr. Soraj Hongladarom, Lecturer of M.A. in Religion and Philosophy (International Program), IBSC, MCU, Thailand, May 12, 2024.

Dhamma-Niyāma, as the three characteristics of existence, tell us that everything is in flux. This means we learn to accept change as an inevitable part of life. This is a fundamental part of Buddhist wisdom. The natural law of impermanence also tells us not to look for utopias. There is no such thing as a final social structure that will promote peace and harmony forever.¹⁷⁸

Elizabeth June Harris emphasizes impermanence:

Nature can also teach us the truth of impermanence (*aniccatā*), a truth that humanity needs to learn if it is to live with compassion as its guiding principle rather than greed. If we as humans can live continually in the awareness that our lives are impermanent, then we will be less likely to exploit other people and our fragile world for short-term gain.¹⁷⁹

Understanding is the key to living in harmony with nature and not destroying each other. Venerable Tikkhasara emphasizes:

The natural laws are so important. If we do not know them, we will attach to everything. We need to be aware of the universal laws. We will be attached to everything if we are irresponsible among them. We must therefore be mindful of our physical body and mind because everything is subject to impermanence.¹⁸⁰

Dhamma-Niyāma should be considered metaphorically as universal truths about impermanence rather than permanent cosmic cycles.¹⁸¹ We must not forget the special and unique context of the commentary, namely the special *Dhamma-Niyāma* associated with the significant extraordinary phenomena of the Bodhisattvas and the

¹⁷⁸ Interview with Venerable Ajahn Brahmali, Theravāda Buddhist monk, Bodhinyana Buddhist Monastery, Australia, February 1, 2024.

¹⁷⁹ Interview with Assoc. Prof. Dr. Elizabeth June Harris, Honorary Senior Research Fellow, University of Birmingham, UK, February 1, 2024.

¹⁸⁰ Interview with Venerable Dr. Tikkhasara, Principal, Sītagū Ketumāṭī Buddhist Academy, Taungoo, Myanmar, May 12, 2024.

¹⁸¹ Interview with Asst. Prof. Dr. Joanna Gruszevska, Centre for Comparative Studies of Civilisations, Faculty of Philosophy, Jagiellonian University in Kraków, Poland, May 12, 2024.

Buddha,¹⁸² as Ven. Nirupam Chakma reminded us that “This law encompasses universal truths and extraordinary phenomena, such as an earthquake at the time of Buddha’s birth. It points to a deeper, inherent order that includes the other laws”.¹⁸³

As mentioned earlier, the Natural Law of *Dhamma-Niyāma* governs all other phenomena and is superior to all other “Natural Laws,” namely: *Sammatta-Niyāma*, *Micchatta-Niyāma*, *Bīja-Niyāma*, *Utu-Niyāma*, *Saṅgama-Niyāma*, *Buddha-Niyāma*, *Sāvaka-Niyāma*, and *Jāti-Niyāma*. This is because the specific type of “Natural Law,” namely, the fixed course of the Dhamma (*Dhamma-Niyāma*), ingeniously explains all phenomena, both material and immaterial. “*Dhamma-Niyāma* itself covers everything already.”¹⁸⁴ Soraj Hongladarom confirmed. Also agreed by Mark Francis Hoolahan, “*Dhamma-Niyāma* includes many laws and ideas that we need to be aware of and practice.”¹⁸⁵ To explain these secondary laws of nature, it is necessary to clarify them in order.

Firstly, *Sammatta-Niyāma* and *Micchatta-Niyāma* are worth realizing because they are the unchanging laws. *Sammatta-Niyāma*, the rightness law of the 37 Factors of Enlightenment (*sattattiṃsabodhipakkhiyadhamma*), and the Noble Path (*ariyamagga*), which lead to enlightenment. *Micchatta-Niyāma*, the wrongness law, then encompasses the five immediacy-deeds (*anantariyakamma*), which obstruct the process of enlightenment.

Secondly, *Bīja-Niyāma*, a biological law, and *Utu-Niyāma*, a physical law, are an inevitable part of the *Dhamma-Niyāma*. *Bīja-Niyāma* and *Utu-Niyāma* are two natural laws that are essential as physical and

¹⁸² Mahāpadāna Sutta Commentary, Sumaṅgalavilāsinī (Dīghanikāya Aṭṭhakathā). DA.II.432; Dhammasaṅgaṇī Commentary, Atthasālinī DhsA.272; Buddhaghosa, **The Expositor (Atthasālinī)**, Vol. II., tr. Maung Tin, pp. 360-362.

¹⁸³ Interview with Ven. Dr. Nirupam Chakma, Wat Dhammavihāra Hawaii, Buddhist Meditation Center, United States of America, May 12, 2024.

¹⁸⁴ Interview with Prof. Dr. Soraj Hongladarom, Lecturer of M.A. in Religion and Philosophy (International Program), IBSC, MCU, Thailand, May 12, 2024.

¹⁸⁵ Interview with Dr. Mark Francis Hoolahan, Assistant Managing Editor, Office of Academic Journal Administration, President’s Office, KMITL, Thailand, May 12, 2024.

environmental laws, and are crucial factors for human survival, including food, plants, vegetables, fruits, air, and temperature. These basic physical needs are crucial because they are the fundamental factors that meet the body's essential requirements. Elizabeth June Harris supported, "The Buddha taught that living beings first need shelter, food and a congenial living environment before they can even begin to think of spiritual practice."¹⁸⁶

Joanna Gruszevska gave her view on the above laws:

Utu-Niyāma expresses natural phenomena, such as weather conditions, are the result of climate; it has a scientific explanation and is not regarded as a result of *kamma*. *Bīja-Niyāma* depicts some health conditions that are the result of genetics. Specific kinds of plants have specific features because of their species.¹⁸⁷

Venerable Dr. Tikkhasara gives importance to physical laws, such as *Bīja-Niyāma* and *Utu-Niyāma*, saying, "If we do not understand the laws of physical nature, we will face various diseases and natural disasters as consequences of nature."¹⁸⁸

Understanding *Bīja-Niyāma* helps us live responsibly with body and environment. *Utu-Niyāma* reminds us that much of life is shaped by the environment; we must adapt wisely rather than imagine we can control nature itself.¹⁸⁹

Lastly, *Saṅgama-Niyāma*, *Buddha-Niyāma*, *Sāvaka-Niyāma*, and *Jāti-Niyāma* are new interpretations and are presented by contemporary thinkers and scholars.

Saṅgama-Niyāma or *Sammatti-Niyāma* refers to social or conventional law. I do not really agree with this addition, since

¹⁸⁶ Interview with Assoc. Prof. Dr. Elizabeth June Harris, Honorary Senior Research Fellow, University of Birmingham, UK, February 1, 2024.

¹⁸⁷ Interview with Asst. Prof. Dr. Joanna Gruszevska, Centre for Comparative Studies of Civilisations, Faculty of Philosophy, Jagiellonian University in Kraków, Poland, May 12, 2024.

¹⁸⁸ Interview with Venerable Dr. Tikkhasara, Principal, Sītagū Ketumatī Buddhist Academy, Taungoo, Myanmar, May 12, 2024.

¹⁸⁹ Interview with Father Dr. Daniele Mazza, Buddhist scholar, a member of the Pontifical Institute for Foreign Missions (PIME), Italy, May 12, 2024.

conventions can change, whereas the very notion of *niyāma* is that of fixed necessity. *Buddha-Niyāma*, *Sāvaka-Niyāma*, and *Jāti-Niyāma* remain within the scope of *Dhamma-Niyāma*¹⁹⁰

Ven. Nirupam Chakma argued,

The additional *Niyāmas* proposed by later scholars (such as *Saṅgama-Niyāma*, *Buddha-Niyāma*, *Sāvaka-Niyāma*, and *Jāti-Niyāma*) are crucial for applying the concept to new domains. Even though they are not canonical texts, they may be useful for modern analysis.¹⁹¹

However, the special feature of the *Dhamma-Niyāma* is its broadness, encompassing the domains of conventional truth (*sammatī-sacca*),¹⁹² concept (*paññatti*),¹⁹³ and ultimate truth (*paramattha-sacca*),¹⁹⁴ allowing the secondary laws of nature to coexist harmoniously without divergence.

3. Third Law, The Fixed Course of the *Citta* (*Citta-Niyāma*)

The fixed course of the *citta*, the third law, refers to the natural law of the functions of the mind, such as rebirth-linking (*paṭisandhi*), life-continuum (*bhavaṅga*), apprehending (*āvajjana*), etc. The fixed course of the *citta* (*Citta-Niyāma*) refers to the natural law of the functions of the mind. The mind works in terms of rebirth-linking (*paṭisandhi*), life-continuum (*bhavaṅga*), apprehending (*āvajjana*), seeing (*dassana*), hearing (*savana*), smelling (*ghāyana*), tasting (*sāyana*), touching (*phusana*), receiving (*sampañicchana*), investigating (*santīraṇa*), determining (*voṭṭhapana*), impulsion (*javana*), registration (*tadālabhāna*), and decease (*cuti*).¹⁹⁵ The fixed course of the *citta* describes the characteristics of the mind, which is the inner nature of humans, unique

¹⁹⁰ Interview with Father Dr. Daniele Mazza, Buddhist scholar, a member of the Pontifical Institute for Foreign Missions (PIME), Italy, May 12, 2024.

¹⁹¹ Interview with Ven. Dr. Nirupam Chakma, Wat Dhammavihāra Hawaii, Buddhist Meditation Center, United States of America, May 12, 2024.

¹⁹² AA.I.95; KvuA.34.

¹⁹³ Pug.A.171; Comp.198.

¹⁹⁴ AA.I.95; KvuA.34.

¹⁹⁵ Vism.458-460; Comp.114; Bhadantacariya Buddhaghosa, **The Path of Purification (Visuddhimagga)**, Tr. By Bhikkhu Ñāṇamoli, 4th Ed., pp. 463-466.

and closely related to humans, as well as the most complex. Soraj Hongladarom argues:

Citta-Niyāma is the law in psychology. In modern science, this is rather controversial because not everyone agrees that there can be natural laws in psychology. However, if we focus on the fact that episodes in the mind do follow upon one another, this fact can be understood as a kind of law¹⁹⁶

Sanjoy Barua Chowdhury agreed that “*Citta-Niyāma* is the principle governing mental activity, similar to psychology”.¹⁹⁷ In fact, the explanation of the *Citta-Niyāma* may seem complicated and full of difficult Pali terms, sometimes not friendly to understanding. Joanna Gruszevska simplifies it, “Perception is conditioned. Emotions can change perception. Mindfulness can help with positive change, train attention, and reduce anxiety.”¹⁹⁸ According to the fixed course of the *citta*, mental processes play a vital role in our lives. Unwholesome thoughts cause suffering, while wholesome thoughts lead to a peaceful life. Mental processes determine both our happiness and our sorrow.¹⁹⁹ Venerable Dr. Tikphasara emphasized.

This law tells us that thoughts, feelings, and perceptions arise in regular patterns. Mindfulness practice works precisely because the mind follows order: by observing these processes, we can train and transform them.²⁰⁰

¹⁹⁶ Interview with Prof. Dr. Soraj Hongladarom, Lecturer of M.A. in Religion and Philosophy (International Program), IBSC, MCU, Thailand, May 12, 2024.

¹⁹⁷ Interview with Dr. Sanjoy Barua Chowdhury, College of Religious Studies, Mahidol University, Thailand, May 12, 2024.

¹⁹⁸ Interview with Asst. Prof. Dr. Joanna Gruszevska, Centre for Comparative Studies of Civilisations, Faculty of Philosophy, Jagiellonian University in Kraków, Poland, May 12, 2024.

¹⁹⁹ Interview with Venerable Dr. Tikphasara, Principal, Sītagū Ketumatī Buddhist Academy, Taungoo, Myanmar, May 12, 2024.

²⁰⁰ Interview with Father Dr. Daniele Mazza, Buddhist scholar, a member of the Pontifical Institute for Foreign Missions (PIME), Italy, May 12, 2024.

The application of the Buddhist framework of the *Niyāma* principle can be coupled with a scientific understanding of nature. Elizabeth June Harris supports this idea, saying:

Buddhists should take into account what scientists, geographers, climate specialists, and other experts are saying about the causes of unrest and poverty in our world. The Natural Laws are a framework of the learning processes in Buddhism that involves active dialogue and engagement not only with the Buddha's teaching but also with the views of experts who can help Buddhists to understand the nature of the different problems that are facing our world.²⁰¹

Somparn Promta suggests that in applying anything to the life of people, the first thing that is needed is that people have to see some merits in those things.²⁰² Faith (*saddhā*)²⁰³ is therefore something that holds people's minds together and enables them to do good deeds with confidence and unwavering determination. He also suggests that the first thing needed might be that we should educate the people on the concept of natural laws in Buddhism. Suppose people already know, they would know further by themselves the merit of this teaching, and then they would apply it to their lives.²⁰⁴

A sustainable society is one in which all members have their basic material needs met so that they can begin to address spiritual questions - reducing their craving and developing loving kindness and compassion for all. This would have a ripple effect, creating greater wholeness and happiness.²⁰⁵

The threefold natural law works together in perfect harmony, like a three-sided pyramid with a common apex. The visible dimensions of each

²⁰¹ Interview with Assoc. Prof. Dr. Elizabeth June Harris, Honorary Senior Research Fellow, University of Birmingham, UK, February 1, 2024.

²⁰² Interview with Prof. Dr. Somparn Promta, Director of Center for the Study of Buddhist Philosophy, MCU, Thailand, February 1, 2024.

²⁰³ *Kamma-sadhā*, *vipāka-sadhā*, *kammassakatā-sadhā*, and *tathāgatabodhi-sadhā*. See A.III.3; Vbh.328.

²⁰⁴ Interview with Prof. Dr. Somparn Promta, Director of Center for the Study of Buddhist Philosophy, MCU, Thailand, February 1, 2024.

²⁰⁵ Interview with Assoc. Prof. Dr. Elizabeth June Harris, Honorary Senior Research Fellow, University of Birmingham, UK, February 1, 2024.

side reveal the coexistence of the other two hidden sides. *Kamma-Niyāma*, *Dhamma-Niyāma*, and *Citta-Niyāma* work in an integrated manner like this.

4.3 Concluding Remarks

Based on natural laws (*Niyāma*) as appeared in the Tipiṭaka and commentaries, it can be concluded that the concept of *Niyāma* in Tipiṭaka plays a significant role in Buddhism, especially as it relates to the understanding of natural phenomena and human actions. The term *Niyāma* refers to “the orderly fixing of things” or “the fixed course of the Dhamma and is central to explaining the natural order, including the interconnectedness of all beings and the inevitability of certain processes, such as Dependent Origination, the Three Characteristics, and the True Path of Assurance (*Sammattaniyāma*). The expansion of this concept in the commentaries introduces five categories: *Kamma-Niyāma*, *Utu-Niyāma*, *Bīja-Niyāma*, *Citta-Niyāma*, and *Dhamma-Niyāma*, with each category reflecting different aspects of existence and spiritual progress. This framework not only helps explain everyday natural occurrences but also points to supernatural phenomena, such as the earth-shaking events tied to the Bodhisattva and the Buddha’s life, providing a deeper understanding of the universe’s underlying order.

Niyāma provides a comprehensive framework for understanding the interconnectedness of natural phenomena, from the physical world to human actions and mental states. Scholars like Phra Brahmaganabhorn and Somparn Promta have elaborated on these laws, connecting them to both physical and mental processes, as well as ethical actions. New laws, such as *Saṅgama-Niyāma*, *Buddha-Niyāma*, *Sāvaka-Niyāma*, and *Jāti-Niyāma*, were added to the Fivefold *Niyāma* through contemporary interpretations to modernize the concept. The concept of *Niyāma* bridges traditional Buddhist teachings with contemporary perspectives, emphasizing the importance of understanding cause and effect in both the material and spiritual realms. The Threefold *Niyāma* presented by the research team is an extract of the essence of the concept: *Kamma-Niyāma*, *Dhamma-Niyāma*, and *Citta-Niyāma*. At the same time, the remaining laws are

explained through *Dhamma-Niyāma*. This evolving interpretation highlights the relevance of these teachings for modern society.

4.4 New Body of Knowledge Gained from the Research

The development of the *Niyāma* has traveled over 25 centuries, from the Tipitaka, the commentaries, to contemporary explanations. The research team introduced the Threefold Law (*Niyāma*) instead of the Fivefold Law to provide a more concise, sustainable framework for understanding natural laws in Theravāda Buddhism. The Fivefold Law, as traditionally interpreted, included five distinct categories. However, the research team recognized that *Utu-Niyāma* (physical laws) and *Bīja-Niyāma* (biological laws) can be encompassed within the broader categories of *Dhamma-Niyāma*, which already covers all natural phenomena, including physical and environmental processes. By focusing on *Kamma-Niyāma*, *Dhamma-Niyāma*, and *Citta-Niyāma*, the Threefold Law simplifies the classification, making it more comprehensive and easier to apply to both the material and spiritual aspects of life. This model aligns more closely with the core concepts found in the Tipitaka, emphasizing the fixed course of action, the interconnectedness of existence, and the natural workings of the mind. All the concepts within the model are based on the foundation of the cosmic law of development, where only form and name are the supreme components. The following chart presents the Threefold Law proposed by the research team:

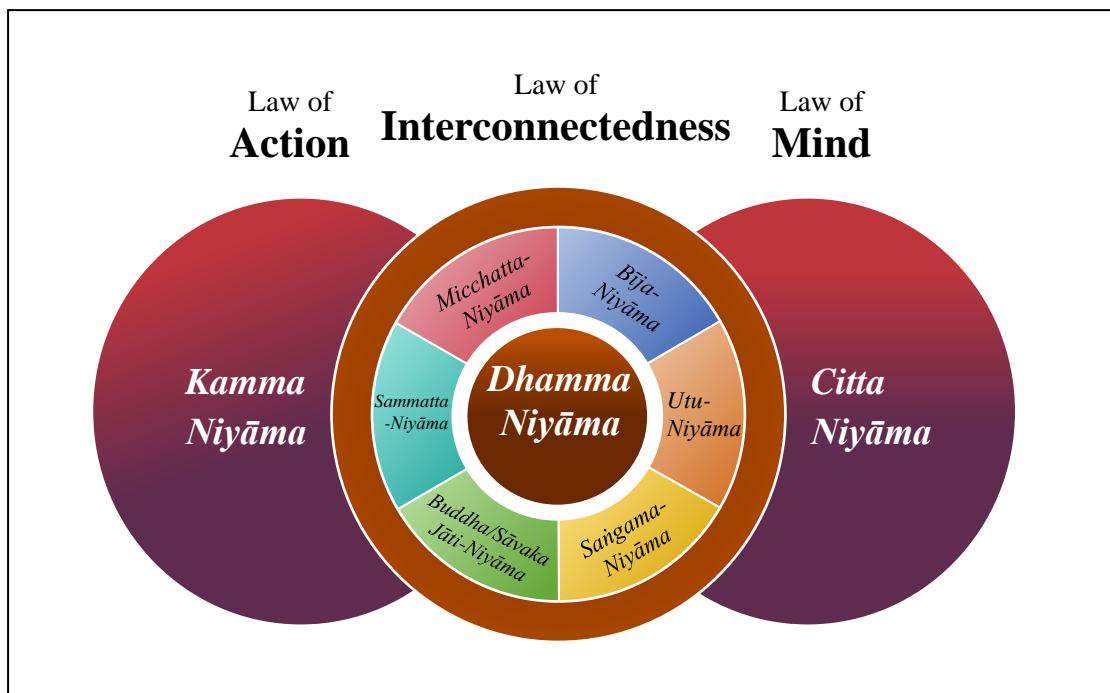


Chart 4.7 The Threefold Law (*Niyāma*) by the Research Team

The Threefold Law (*Niyāma*) in Theravāda Buddhism divides natural laws into three categories, each focusing on different aspects of existence. The first law, *Kamma-Niyāma*, refers to the fixed course of actions and their consequences. It emphasizes that human actions, driven by intention (*cetanā*), shape the moral fabric of existence. The second law, *Dhamma-Niyāma*, governs the natural order of phenomena, focusing on the principle of dependent origination and the three characteristics of existence. The Natural Law of *Dhamma-Niyāma* governs all other phenomena. It is superior to all other “Natural Laws,” namely: *Sammatta-Niyāma*, *Micchatta-Niyāma*, *Bīja-Niyāma*, *Utu-Niyāma*, *Saṅgama-Niyāma*, *Buddha-Niyāma*, *Sāvaka-Niyāma*, and *Jāti-Niyāma*. The third law, *Citta-Niyāma*, relates to the mind’s natural processes, including perception and emotional responses, which influence human behavior.

Together, these laws illustrate a new comprehensive framework for understanding the interconnectedness of actions (*kamma*), mental states (*citta*), and the broader natural world (*Dhamma*). By applying these concepts, individuals can cultivate mindfulness and ethical conduct, thereby fostering a balanced and harmonious life in alignment with the laws of nature.

Chapter 5

Conclusion, Discussion, and Suggestion

In this chapter, the research team presented the findings in relation to the two objectives. The outstanding research findings presented in this work were also discussed in the “discussion” section, drawing on the current knowledge. Some useful suggestions were given at the end. The presentation framework is presented in the following order: 1) Conclusion, 2) Discussion, and 3) Suggestion.

5.1 Conclusion

The research findings were concluded according to the two objectives in order: 1) To explore natural laws (*niyāma*) as appeared in Tipiṭaka and Commentaries, and 2) To explore natural laws (*niyāma*) from modern scholars’ perspectives and to propose a developmental model of the natural laws (*niyāma*) in Theravāda Buddhism.

5.1.1 Natural Laws (*Niyāma*) as Appeared in Tipiṭaka and Commentaries

Natural Laws (*Niyāma*) in Tipiṭaka: The Pali term “*niyāma*” refers to inevitability or certainty, meaning the orderly fixing of things, or the fixed course of the Dhamma (*dhammaniyāmatā*). *Niyāma* exists in the following three contexts: (1) *Niyāma* in the context of Dependent Origination is the most important principle of Buddhism that guides the wisdom of people to understand the natural law of all things that depend on each other to come into being. Nothing can stand on its own without relying on the others. The Buddha uses this natural law to describe “Dependent Origination”; (2) *Niyāma* in the context of the three characteristics, which are characteristics that appear universally; and (3) *Niyāma* in the context of *sammattaniyāma* is truly the concept of the natural law that encourages practitioners to continue on their right path

without discouragement. In addition, it is a natural law that confirms the existence of a system of Dhamma practice, especially the “Right Noble Path that arises from the right practice.”

Natural Laws (*Niyāma*) in Commentaries: The concepts of natural laws (*Niyāma*) in commentaries reveal that *Niyāma* refers to certainty. It is categorized into five types based on the nature of the certainty. The Suttanta Piṭaka Aṭṭhakathā emphasizes the explanation of the five types of certainty in the manner of various events that are certainties that occur regularly in daily life, namely, Moral, Caloric, Germinal, and Psychological Certainty. At the same time, Natural-phenomenal Certainty signifies events that are supernatural phenomena that may not occur very often during human life. When the Mother of Bodhisattvas descended into the womb, etc. The Abhidhamma Piṭaka Aṭṭhakathā explained *Niyāma* in a different order as follows: Germinal, Caloric, Moral, Natural-phenomenal, and Psychological Certainty.

Developmental Analysis of Natural Laws (*Niyāma*) as Appeared in Tipiṭaka and Commentaries: From the Natural-phenomenal Certainty in the Pali Canon, the Fivefold *Niyāma* is considered an initiative to expand “From one to five,” starting from the Moral Certainty, the Caloric Certainty, the Germinal Certainty, the Psychological Certainty, and the Natural-phenomenal Certainty, that the commentator uses to explain the laws of nature. The largest category of *Niyāma* explained by commentator is “*Dhamma-Niyāma*,” which is unique in that when Bodhisattvas contemplate the moment of their birth from their mother’s womb, the moment of their enlightenment attaining the supreme and perfect enlightenment, the moment the Wheel of Dhamma moves, the moment of their death prediction, and the moment of their final Nibbāna, the great earthquake will happen.

5.1.2 Natural Laws (*Niyāma*) from Modern Scholars’ Perspectives and A Developmental Model of the Natural Laws (*Niyāma*) in Theravāda Buddhism

Thai Scholars’ Perspectives on Natural Laws (*Niyāma*): Venerable Phra Brahmaganabhorn (P.A.Payutto), elaborated and connected it to various phenomena occurring in everyday life, drawing

primarily on the ideas of the commentators. He offered the sixth law, “the law of society,” (*Saṅgama-Niyāma*). Somparn Promta explained it based on the principles of scientific “laws” and “theories” in science. Both scholars’ explanations draw entirely from the concepts of the commentators, including the reference to the Five Natural Laws (*Niyāma*).

International Scholars’ Perspectives on Natural Laws (*Niyāma*): C.A.F. Rhys Davids explained the Five *Niyāmas* in line with the conservative view of the commentators. Venerable Ledi Sayadaw expanded the categories of *Niyāma* to eight, adding three new orders to the original five: Buddha Order (*Buddha-Niyāma*), Disciple Order (*Sāvaka-Niyāma*), and Birth Order (*Jāti-Niyāma*), respectively.

A Developmental Model of the Natural Laws (*Niyāma*) in Theravāda Buddhism: *Niyāma* originally provides a comprehensive framework for understanding the interconnectedness of natural phenomena. Contemporary scholars have elaborated on these laws by connecting them to both physical and mental processes, as well as ethical actions. New laws, such as *Saṅgama-Niyāma*, *Buddha-Niyāma*, *Sāvaka-Niyāma*, and *Jāti-Niyāma*, were added to the Fivefold *Niyāma* through contemporary interpretations to modernize the concept. The concept of *Niyāma* bridges traditional Buddhist teachings with contemporary perspectives, emphasizing the importance of understanding cause and effect in both the material and spiritual realms. The reorganization is done to preserve faithfulness to the sacred canonical text while preventing an over-systematization of the main concept. The developmental model of the threefold law consists of *Kamma-Niyāma*, *Dhamma-Niyāma*, and *Citta-Niyāma*. Among them, the Natural Law of *Dhamma-Niyāma* governs all other phenomena. It is superior to all other “Natural Laws,” namely: *Sammatta-Niyāma*, *Micchatta-Niyāma*, *Bīja-Niyāma*, *Utu-Niyāma*, *Saṅgama-Niyāma*, *Buddha-Niyāma*, *Sāvaka-Niyāma*, and *Jāti-Niyāma*. The threefold natural law works together in perfect harmony, like a three-sided pyramid with a common apex. The visible dimensions of each side reveal the coexistence of the other two hidden sides.

5.2 Discussion

The laws of nature from a Buddhist perspective are clear both in terms of meaning and classification. The new knowledge on the developmental analysis of natural laws (*niyāma*) as appeared in Tipiṭaka and commentaries, presented by the research team, covered everything from the Pali Canon to the diverse interpretations of Buddhist scholars both in Thailand and abroad. From the Natural-phenomenal Certainty in the Pali Canon, the Fivefold *Niyāma* is considered an initiative to expand “From one to five.” This is in contrast to the broad analyses offered by various scholars, for example, Phramaha Rangsan Thammaraso (Saengseesom)¹ who stated that the purpose of the classification of *Niyāma* as Fives is to simplify the principle to explain the cause and effect of nature for easier understanding among villagers and common people. Another scholar who has analyzed the characters and roles of *niyāma* is Phramaha Somphong Santacitto² saying that *Niyāma* characterizes two implications. They are non-moral natural law, and moral natural law. Moreover, the role that these laws play at the individual, social and environmental levels, and the manner in which those levels are interrelated as a result of those laws.

It is satisfactory that Somkiet Chaiyabhumi, Suchart Kartangchol, and Pensri Bangbon³, this group of researchers has proposed a nearly perfect model, stating that: According to commentaries, the minor outcome laws, which are of the meanings corresponding to original *Dhamma Niyāma*, are only four laws as follows: (1) *Utu Niyāma*, (2) *Bīja Niyāma*, (3) *Citta Niyāma*, and (4) *Kamma Niyāma*. All of these *Niyāmas* are different from the present Buddhist Scholars who interpret the minor

¹ Phramaha Rangsan Thammaraso (Saengseesom), “Relation of Kamma and Reincarnation Influencing on the Recall of Previous Life”, (Thai Edition), **M.A. Thesis (Buddhist Studies)**, (Graduate School: Mahachulalongkornrajavidyalaya, 2550), pp. 66.

² Phramaha Somphong Santacitto, “An Analytical Study of the Concept of *Dhamma* as Natural Law in Theravāda Buddhism”, **M.A. Thesis (Buddhist Studies)**, (Graduate School: Mahachulalongkornrajavidyalaya University, 2006), p. ii. <https://e-thesis.mcu.ac.th/thesis/3850>

³ Somkiet Chaiyabhumi, Suchart Kartangchol, Pensri Bangbon, “The Analytical Study of the Categorization of the Five *Niyāma*”, **The Journal of Sirindhornparithat**, Vol.19 No.2 (2018): 52-64. <https://so06.tcithaijo.org/index.php/jsrc/article/view/201028/140536>

Dhamma Niyāma with the same meanings as the big original *Dhamma Niyāma*. The *Dhamma Niyāma*, according to the commentary, is a classification to honor and glorify the Buddhas (*buddhapūjā*). This categorization of the Five *Niyāma* provided clues to past civilizations for this research project, particularly in the area of a developmental model of the natural laws (*niyāma*) in Theravāda Buddhism as presented here.

5.3 Suggestions

The research team made the following suggestions that can be divided into three categories: (1) General Suggestion, and (2) Suggestions for Further Research, as follows:

5.3.1 General Suggestion

Buddhists should be aware of the importance of natural laws in their various forms and types, and develop the capacity to apply this knowledge to their meditation practice and daily life. Moreover, Buddhist scholars and multidisciplinary integrators should apply this knowledge of natural laws to solve problems in various dimensions, such as social problems, ethical problems, and especially natural problems. Using nature-based solutions that are actions that work with nature to solve societal challenges, such as climate change, global boiling, water security, etc., for sustainable ecosystems.

5.3.2 Suggestions for Further Research

For the reason that the research is allowed to proceed according to the objectives and scope of the study, which have been clearly defined. The research team has found some key academic gaps that are useful for future research, listed as follows:

1. A Buddhist Natural Laws: An Integration of the Fivefold *Niyāma* in Buddhism with Scientific Physical Laws
2. A Theoretical Framework of Natural-phenomenal Law (*Dhamma-niyāma*) for Natural Sustainability
3. A Buddhist Innovation of the Fivefold *Niyāma* for Nature-based Solutions

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- Nyarnait Thara, Ven. “The Concept of the Five Niyāma in Theravāda Buddhism”. **Ph.D. Thematic Paper (Buddhist Studies)**. Graduate School: Mahachulalongkornrajavidyalaya, 2019.
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(4) In-depth Interviews

- Brahmali, Venerable Ajahn. Theravāda Buddhist monk, Bodhinyana Buddhist Monastery, Australia. Interview. February 1, 2024.
- Chakma, Nirupam, Venerable, Dr. Wat Dhammavihāra Hawaii. Buddhist Meditation Center, United States of America. Interview. May 12, 2024.
- Chowdhury, Sanjoy Barua, Dr., College of Religious Studies. Mahidol University, Thailand. Interview. May 12, 2024.
- Gruszevska, Joanna, Asst. Prof. Dr. Centre for Comparative Studies of Civilisations. Faculty of Philosophy. Jagiellonian University in Kraków, Poland. Interview. May 12, 2024.
- Harris, Elizabeth June, Assoc. Prof. Dr. Honorary Senior Research Fellow. University of Birmingham, UK. Interview. February 1, 2024.
- Hongladarom, Soraj, Prof. Dr. Lecturer of M.A. in Religion and Philosophy (International Program). IBSC. MCU, Thailand. Interview. May 12, 2024.

- Hoolahan, Mark Francis, Dr., Assistant Managing Editor. Office of Academic Journal Administration. President's Office. KMITL, Thailand. Interview. May 12, 2024.
- Mazza, Daniele, Father, Dr., Buddhist scholar. Member of the Pontifical Institute for Foreign Missions (PIME), Italy. Interview. May 12, 2024.
- Promta, Somparn, Prof. Dr., Director of the Center for the Study of Buddhist Philosophy. MCU, Thailand. Interview. February 1, 2024.
- Tikkhasara, Venerable, Dr. Principal. Sītagū Ketumatī Buddhist Academy. Taungoo, Myanmar. Interview. May 12, 2024.

(5) Online Resources

- Mindy Weisberger, CNN Science Tue January 21, 2025, Earth's magnetic north pole is on the move, and scientists just updated its position, [Online], Source:
<https://edition.cnn.com/2025/01/21/science/magnetic-north-pole-new-position> [Retrieved on August 1, 2025].

APPENDIX I

Question Forms for In-depth Interview

Form number


In-depth Interview Questions Form

Objective: To collect data from key informants
Key Informants: Theravāda Monks and Buddhist scholars.
Research Title: A Developmental Model of the Natural Laws
(Niyāma) in Theravāda Buddhism

Instructions

1. Objective of the Research: To propose a developmental model of the natural laws (*niyāma*) in Theravāda Buddhism.
2. All data obtained from this interview will be used only for this research.
3. Please feel free to give the best answers based on your expertise.
4. This interview form consists of two parts, plus one attachment sheet;
 - Part I: General Information of the Key Informant
 - Part II: Opinion on specific issues
(Table no.1: Attachment sheet)

Thanking you for your courtesy on this interview


 (Assoc. Prof. Dr. Sanu Mahatthanadull)
 The Project Leader

Part I: General Information of the Key Informant

1. Name / Family name _____
2. Age _____
3. Occupation _____
4. Sectarian _____
5. Academic Position _____
6. Institute _____
7. Fields of Expertise _____

Part II: Opinion on Specific Issues
--

Question 1: Please define the word “Natural Laws” (*Niyāma*) in Buddhism as close to your understanding as possible.

Question 2: What is your view on these natural laws (*niyāma*) to our lives? (Please answer one by one.)

1. Caloric Law (*Utu-niyāma*);

2. Germinal Law (*Bīja-niyāma*);

3. Psychical Law (*Citta-niyāma*);

4. Moral Law (*Kamma-niyāma*);

5. Natural Phenomenal Law (*Dhamma-niyāma*)

Question 3: Do you agree with the Model of the *Niyāma*? (see Table No.1) Are there any *niyāmas* that could be added or removed?

(End of question form)

I have provided the information for the research as above.

(.....)

Key informant

Table no.1

<i>Niyāmas</i>	Tipiṭaka	Mahāpadāna Sutta Commentary	Dhammasaṅgani Commentary	Ven. Phra Brahmaganabhorn (P.A.Payutto)	Ven. Ledi Sayadaw
1. Caloric Certainty (<i>Utu-Niyāma</i>)	-	Pick flowers and fruits by cutting them once, wind, sun, rain, lily of the smile. close	The tree blooms and bears fruit. There are young leaves at the same time.		
2. Germinal Certainty (<i>Bīja-Niyāma</i>)	-	Wheat is the result of wheat, sweet and bitter taste. As a plant fruit	Fruiting plants: clumps of peas, vines, sunflowers, sand-roasting vines, coconut fruits.		
3. Psychological Certainty (<i>Citta-Niyāma</i>)	-	Habits of Mind and Attitude	duty The Cause of the Mind, the Task, the Consensus, etc.		
4. Moral Certainty (<i>Kamma-Niyāma</i>)	-	Giving the fruits of charity, non-charity	Giving the effect of karma		
5. Natural-phenomenal Certainty (<i>Dhamma-Niyāma</i>)	Blessing Common Characteristics	Wavering In the Ten Thousand Elemental Worlds	Ten thousand universes are shaken.		
6. Social Certainty (<i>Saṅgama-Niyāma</i>)	-	-	-	The Rules of Human Conduct	-
7. Buddha Certainty (<i>Buddha-Niyāma</i>)	-	-	-	-	Natural Laws of Buddha
8. Disciple Certainty (<i>Sāvaka-Niyāma</i>)	-	-	-	-	The Natural Law of Disciples
9. Nation Certainty (<i>Jāti-Niyāma</i>)	-	-	-	-	The natural law of birth

APPENDIX II
Content Validity Index (CVI) Examination Forms

The Content Validity Index (CVI) Form

Research Title: A Developmental Model of the Natural Laws (*Niyāma*)
in Theravāda Buddhism

Explanation: Please read the following interviewing questions then kindly give the scores according to the table of Content Validity Index (CVI) which is used to evaluate the items of the interviewing questions based on the score range from -1 to +1 as shown below:

Clearly understand (Validity) = +1

Unclear (Questionable) = 0

Not clearly understand (Invalidity) = -1

No.	Objectives and Interviewing Questions	CVI Score			Remarks
		+1	0	-1	
Objective: To propose a developmental model of the natural laws (<i>niyāma</i>) in Theravāda Buddhism					
Q.1	Please define the word “Natural Laws” (<i>Niyāma</i>) in Buddhism as close to your understanding as possible.				
Q.2	What is your view on these natural laws (<i>niyāma</i>) to our lives? (Please answer one by one.) 1. Caloric Law (<i>Utu-niyāma</i>); 2. Germinal Law (<i>Bīja-niyāma</i>); 3. Psychical Law (<i>Citta-niyāma</i>); 4. Moral Law (<i>Kamma-niyāma</i>);				

No.	Objectives and Interviewing	CVI Score			Remarks
	5. Natural Phenomenal Law (<i>Dhamma-niyāma</i>)				
Q.3	Do you agree with the Model of the <i>Niyāma</i> ? (see Table No.1) Are there any <i>niyāmas</i> that could be added or removed?				

Remarks: The items that have scores lower than 0.5 will be revised. On the other hand, the items that have scores higher than or equal to 0.5 will be reserved.

I hereby examined the above CVI form and provided suggestions.

(.....)

CVI Examiner

APPENDIX III

Invitation Letters

- In-depth Interviews
- CVI Examiners

No AW 8013w196



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 URL : www.mcu.ac.th

21 June 2023

Venerable Ajahn Brahmali, Bodhinyana Buddhist Monastery, Australia

Dear Venerable Ajahn Brahmali
Subject: Invitation for an in-depth interview
Enclosed: A copy of the interview question form 1 copy

We hope this letter finds you well. Dr. Sanu Mahatthanadull is an associate professor of religion and theism and the program director of the Ph.D. in Buddhist Studies (International Program) at International Buddhist Studies College, MCU. He, as the project head, and his team are currently conducting research on **A Developmental Model of the Natural Laws (*Niyāma*) in Theravāda Buddhism**.

We would like to extend an invitation to you for an **in-depth interview**. Your expertise and insights related to the Research make you an ideal candidate for this project. Your valuable perspective will significantly contribute to the depth and quality of the study.

We would be grateful if you could spare time for the interview. Should you have any questions or require further information about the research or the interview process, please do not hesitate to contact Ven. Dhammanan Parisuddhachayo, research coordinator, via email at dhammanan.san@mcu.ac.th or by phone at 66 64 4981942. He would be more than happy to provide any additional details you may need.

We greatly appreciate your time and expertise and look forward to hearing from you soon.

Yours sincerely in the Dhamma,

(Phrakrupalad Paññāvorawat (Hansā Dhammahāso), Prof Dr)
 Director of International Buddhist Studies College
 Mahāchulālongkornrājavidyālaya University

No AW 8013/w196



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21 June 2023

Venerable Dr. Tikkhasara, Sitagū Ketumatī Buddhist Academy, Taungoo, Myanmar

Dear Venerable Dr. Tikkhasara
Subject: Invitation for an in-depth interview
Enclosed: A copy of the interview question form 1 copy

We hope this letter finds you well. Dr. Sanu Mahatthanadull is an associate professor of religion and theism and the program director of the Ph.D. in Buddhist Studies (International Program) at International Buddhist Studies College, MCU. He, as the project head, and his team are currently conducting research on **A Developmental Model of the Natural Laws (*Niyāma*) in Theravāda Buddhism**.

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21 June 2023

Ven. Dr. Nirupam Chakma, Wat Dhammavihāra Hawaii, Buddhist Meditation Center, United States of America

Dear Ven. Dr. Nirupam Chakma
Subject: Invitation for an in-depth interview
Enclosed: A copy of the interview question form 1 copy

We hope this letter finds you well. Dr. Sanu Mahatthanadull is an associate professor of religion and theism and the program director of the Ph.D. in Buddhist Studies (International Program) at International Buddhist Studies College, MCU. He, as the project head, and his team are currently conducting research on **A Developmental Model of the Natural Laws (*Niyāma*) in Theravāda Buddhism**.

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21 June 2023

Venerable Father Dr. Daniele Mazza, PIME, Italy

Dear Venerable Father Dr. Daniele Mazza
Subject: Invitation for an in-depth interview
Enclosed: A copy of the interview question form 1 copy

We hope this letter finds you well. Dr. Sanu Mahatthanadull is an associate professor of religion and theism and the program director of the Ph.D. in Buddhist Studies (International Program) at International Buddhist Studies College, MCU. He, as the project head, and his team are currently conducting research on **A Developmental Model of the Natural Laws (*Niyāma*) in Theravāda Buddhism**.

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21 June 2023

Assoc. Prof. Dr. Elizabeth June Harris, University of Birmingham, UK

Dear Assoc. Prof. Dr. Elizabeth June Harris
Subject: Invitation for an in-depth interview
Enclosed: A copy of the interview question form 1 copy

We hope this letter finds you well. Dr. Sanu Mahatthanadull is an associate professor of religion and theism and the program director of the Ph.D. in Buddhist Studies (International Program) at International Buddhist Studies College, MCU. He, as the project head, and his team are currently conducting research on **A Developmental Model of the Natural Laws (*Niyāna*) in Theravāda Buddhism**.

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21 June 2023

Asst. Prof. Dr. Joanna Gruszevska, Jagiellonian University in Kraków, Poland

Dear Asst. Prof. Dr. Joanna Gruszevska
Subject: Invitation for an in-depth interview
Enclosed: A copy of the interview question form 1 copy

We hope this letter finds you well. Dr. Sanu Mahatthanadull is an associate professor of religion and theism and the program director of the Ph.D. in Buddhist Studies (International Program) at International Buddhist Studies College, MCU. He, as the project head, and his team are currently conducting research on **A Developmental Model of the Natural Laws (*Niyāma*) in Theravāda Buddhism**.

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21 June 2023

Dr. Mark Francis Hoolahan, KMITL, Thailand

Dear Dr. Mark Francis Hoolahan
Subject: Invitation for an in-depth interview
Enclosed: A copy of the interview question form 1 copy

We hope this letter finds you well. Dr. Sanu Mahatthanadull is an associate professor of religion and theism and the program director of the Ph.D. in Buddhist Studies (International Program) at International Buddhist Studies College, MCU. He, as the project head, and his team are currently conducting research on **A Developmental Model of the Natural Laws (*Niyāma*) in Theravāda Buddhism**.

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21 June 2023

Dr. Sanjoy Barua Chowdhury, Mahidol University, Thailand

Dear Dr. Sanjoy Barua Chowdhury
Subject: Invitation for an in-depth interview
Enclosed: A copy of the interview question form 1 copy

We hope this letter finds you well. Dr. Sanu Mahatthanadull is an associate professor of religion and theism and the program director of the Ph.D. in Buddhist Studies (International Program) at International Buddhist Studies College, MCU. He, as the project head, and his team are currently conducting research on **A Developmental Model of the Natural Laws (*Niyāma*) in Theravāda Buddhism**.

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Director of International Buddhist Studies College
Mahāchulālongkornrajavidyālaya University



Memorandum

Department International Buddhist Studies College Telephone 0 35-248-000: 7212

No. AW 8013/w208

Date 23 June 2023

Dear Prof. Dr. Somparn Promta
Subject: Invitation for an in-depth interview
Enclosed: A copy of the interview question form 1 copy

We hope this letter finds you well. Dr. Sanu Mahatthanadull is an associate professor of religion and theism and the program director of the Ph.D. in Buddhist Studies (International Program) at International Buddhist Studies College, MCU. He, as the project head, and his team are currently conducting research on **A Developmental Model of the Natural Laws (*Niyāma*) in Theravāda Buddhism**.

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International Buddhist Studies College

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Email: dhammanan.san@mcu.ac.th



Memorandum

Department International Buddhist Studies College **Telephone** 0 35-248-000: 7212

No. AW 8013/w208

Date 23 June 2023

Dear Prof. Dr. Soraj Hongladarom
Subject: Invitation for an in-depth interview
Enclosed: A copy of the interview question form 1 copy

We hope this letter finds you well. Dr. Sanu Mahatthanadull is an associate professor of religion and theism and the program director of the Ph.D. in Buddhist Studies (International Program) at International Buddhist Studies College, MCU. He, as the project head, and his team are currently conducting research on **A Developmental Model of the Natural Laws (*Niyāma*) in Theravāda Buddhism**.

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21 June 2023

Dear Most Ven. Phra Methavinairos, Assoc. Prof. Dr.
Subject: Invitation for a CVI Examiner
Enclosed: A copy of the CVI form 1 copy

We hope this letter finds you well. Dr. Sanu Mahatthanadull is an associate professor of religion and theism and the program director of the Ph.D. in Buddhist Studies (International Program) at International Buddhist Studies College, MCU. He, as the project head, and his team are currently conducting research on **A Developmental Model of the Natural Laws (*Niyāma*) in Theravāda Buddhism**.

We would like to extend an invitation to you for a **Content Validity Index (CVI) examiner** in order to examine the research tools that will be used in the research.

We would be grateful if you could spare time for the CVI Examination. Should you have any questions or require further information about the research, please do not hesitate to contact Ven. Dhammanan Parisuddhachayo, research coordinator, via email at dhammanan.san@mcu.ac.th or by phone at 66 64 4981942. He would be more than happy to provide any additional details you may need.

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21 June 2023

Dear Assoc. Prof. Dr. Praves Intongpan
Subject: Invitation for a CVI Examiner
Enclosed: A copy of the CVI form 1 copy

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21 June 2023

Dear Assoc. Prof. Dr. Amnaj Buasiri
Subject: Invitation for a CVI Examiner
Enclosed: A copy of the CVI form 1 copy

We hope this letter finds you well. Dr. Sanu Mahatthanadull is an associate professor of religion and theism and the program director of the Ph.D. in Buddhist Studies (International Program) at International Buddhist Studies College, MCU. He, as the project head, and his team are currently conducting research on **A Developmental Model of the Natural Laws (*Niyāma*) in Theravāda Buddhism**.

We would like to extend an invitation to you for a **Content Validity Index (CVI) examiner** in order to examine the research tools that will be used in the research.

We would be grateful if you could spare time for the CVI Examination. Should you have any questions or require further information about the research, please do not hesitate to contact Ven. Dhammanan Parisuddhachayo, research coordinator, via email at dhammanan.san@mcu.ac.th or by phone at 66 64 4981942. He would be more than happy to provide any additional details you may need.

Yours sincerely in the Dhamma,

A handwritten signature in blue ink, appearing to read 'P. Kasat', written in a cursive style.

(Phrakrupalad Paññāvorawat (Hansā Dhammahāso), Prof. Dr.)
 Director of International Buddhist Studies College
 Mahāchulālongkornrājavidyālaya University

Biography of the Researchers



1. Researcher's Curriculum Vitae (Head of the Project)

- 1.1 Name-Surname** Assoc. Prof. Dr. Sanu Mahatthanadull
- 1.2 Nationality** Thai
- 1.3 Present Position** Program Director of Ph.D. in Buddhist Studies
(International Program)
- 1.4 Institute** International Buddhist Studies College,
Mahachulalongkornrajavidyalaya University. 79
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1.5 Educational Background

- Ph.D. (Buddhist Studies), MCU, 2013
M.A. (Buddhist Studies), MCU, 2010
B.A. (Advertisement), Bangkok University,
1995

- 1.6 Areas of Expertise**
- Theravāda Buddhism
 - Abhidhamma study
 - Pāli language
 - Pāli translation
 - Buddhist integration
 - Buddhist biology
 - Multidisciplinary study

1.7 Experiences Related to the Research

1.7.1 Head of the Research Project

- 1) “Buddhist Biology: Life-Supporting Factors According to the Seven Suitable (*Sappāya*)” (Thai Edition). Research funded by the National Research Council of Thailand (NRCT), 2014.
- 2) “The Five Precepts: Criterion and Promotion of Individual and Social Peace” (Thai Edition). Research funded by Thai Health Promotion Foundation, 2015.
- 3) “A Study of the Holistic Well-beings Promotion for Balanced Way of Life according to Buddhist Psychology”. Research funded by the National Research Council of Thailand (NRCT), 2016.
- 4) “Human Behaviors in Promoting Balance of Family according to Buddhist Psychology”. Research funded by the National Research Council of Thailand (NRCT), 2017.
- 5) “A Conceptual Model of Bi-dimensional Development for Happiness Access by Biofeedback Process”, Research funded by the National Research Council of Thailand (NRCT), 2017.

1.7.2 Co-researcher

- 1) “Strengthening the Emotional Strength of Professional Nurses: Principle and Buddhist Ideal, 2016.
- 2) “The Integrated Buddhist Psychology: The Model and Process for Promotion Holistic Health of Families and Society”, A Research Fund of National Research Council of Thailand (NRCT), 2016.
- 3) “Development of Plasma Generator Improving Titanium Alloys Surface for Biomedical Applications”, Research Report, (BRI: MCU), 2018.
- 4) “Mindfulness: The Development of Mindfulness-Based-Learning Model in the 21st Century”, A Research Fund of National Research Council of Thailand (NRCT), 2021.

1.8 Address

N/A



2. Researcher's Curriculum Vitae (Project Adviser)

- 2.1 Name-Surname** Most Ven. Phra Brahmawatcharatheeracharn,
Prof. Dr.
- 2.2 Nationality** Thai
- 2.3 Present Position** Rector of Mahachulalongkornrajavidyalaya
University
- 2.4 Institute** Office of the Rector,
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- 2.5 Educational Background**
Ph.D. (Palī & Buddhist Studies) BHU, India.
M.A. (Buddhist Studies), MCU.
B.A. Sukhothai Thammathirat University.
Palī Study Grade IX
- 2.6 Address** Wat Pak Nam, Pak Klong sub-district,
Bhasicharoen district, Bkk, Thailand 10160.



3. Researcher's Curriculum Vitae (Co-researcher)

3.1 Name-Surname Venerable Phramaha Nantakorn Piyabhani (Ket-in), Asst. Prof. Dr.

3.2 Nationality Thai

3.3 Present Position Director of Master of Arts Program in Buddhist Studies (International Program)

3.4 Institute International Buddhist Studies College,
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3.5 Educational Background

Ph.D. (Buddhist Studies), University of Delhi, India, 2010

M.A. (Buddhist Studies), University of Delhi, India, 2005

B.A. (English), MCU, 2002

3.6 Areas of Expertise

- Pali Language Studies
- Theravada Buddhist Studies
- Abhidhamma Studies

3.7 Experiences Related to the Research

3.7.1 Head of the Research Project

- 1) “The Creating and Developing Buddhist Happiness Indicators according to the Buddha’s Principle of Teaching”, Research funded by the National Research Council of Thailand (NRCT), 2015.
- 2) “An Analytical Study of the Factors Causing Sexual Deviation as Depicted in Buddhist Scriptures”, Research funded by the National Research Council of Thailand (NRCT), 2017.
- 3) “Buddhism-based Moral Solution to Commercial Surrogacy Issue in Thai Society”, Research funded by the National Research Council of Thailand (NRCT), 2018.
- 4) “Suicide: Buddhism-based Moral Solution to Suicide Issues in Thai Society”, Research funded by the National Research Council of Thailand (NRCT), 2020.
- 5) “The Development of Systematic Thinking Based on a Buddhist Approach in the 21st Century”, Research funded by Science Research and Innovation Fund, 2021.

3.7.2 Co-researcher

- 1) “An Analysis of Policies and Strategies of Buddhism and Cultural Tourism in ASEAN Community”, Research funded by the National Research Council of Thailand (NRCT), 2016.
- 2) “A Conceptual Model of Bi-dimensional Development for Happiness Access by Biofeedback Process”, Research funded by the

National Research Council of Thailand
(NRCT), 2017.

3.8 Address

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