Functional food in Indonesia: An analysis of legal and institutional framework

A Gustina¹, P B Putera², P T W W Kusuma², W Y Hastanto² and W Kurniawati³

¹ The Research and Development Center Attorney General's Office of Indonesia, Jl. Sultan Hasanuddin Dalam No.1, RW.7, Kramat Pela, Kec. Kby. Baru, Kota Jakarta Selatan, Daerah Khusus Ibukota Jakarta 1216
² Indonesia Institute of Science, Jl. Jend. Gatot Subroto 10, Jakarta
³ Institute of Social Sciences and Management, STIAMI Jakarta, Jl. Pangkalan Asem Raya 55, Cempaka Putih, Jakarta, 10530

Email: prak001@lipi.go.id

Abstract. Indonesia has functional food regulation in 2005 through the Regulation of the Head of the Food and Drug Supervisory Agency Number HK 00.05.52.0685 concerning Provisions on Basic Functional Food Control. However, there is a shift in the term to "Claims on Processed Food Labels" or later known as "Claimed Foods" in accordance with the Regulation of the Head of the Food and Drug Supervisory Agency Number 13 of 2016. The dynamics of policy changes are reviewed through qualitative methods with a content analysis approach. The results of the study indicate that the development of science and technology, as well as international consensus through the annual session of the Codex Alimentarius Commission has an effect on regulation in Indonesia, and has been adjusted to Nutrition and Health Claims (CAC/GL 23–1997), Guidelines for Use of Nutrition and Health Claims, Adopted in 1997. Revised in 2004. Amended in 2001, 2008, 2009, 2010, 2011, 2012 and 2013. Annex adopted 2009. In addition, it also required 1) Guidelines for the Development of Functional Food and its claims directed at nutritional functions, improving function or decrease in disease risk in the framework of promotive and preventive efforts after the fulfillment of balanced nutrition, and 2) regulations related to functional food, especially the Indonesian National Standard (SNI). It would be more beneficial if SNI for functional food was arranged in general, not for each product or for every benefit. SNI that can be compiled are SNI terms and definitions (term and definition), SNI for functional food guidelines and SNI code of practice for functional food claims.

1. Introduction

Food has become a major need in human life, this is increasing along with the increasing number of people in the world. Increasing population is not the only problem that impedes the pursuit of food security [1]. On the other hand, the reduction of agricultural land converted into settlements and industrial land has become a threat and challenge for a country in the food sector. The surge in world population reached a high increase after 1960, we can see from the population of the 2000s that reached approximately 6 billion people, of course with this population growth will cause various problems including food insecurity. Even two US researchers have said that by 2100, the world's population will face a food crisis [2].
The function of agricultural land in Indonesia has changed and the industry has no less than 110,000 hectares of paddy fields every year. The population of Indonesia which reaches more than 250 million per year with a rate of 2% increase per year requires sufficient food products with balanced nutritional quality. Local food sources are sufficient, but engineering technology that is able to provide better quality seeds and technology that is able to process local food with standards that do not reduce nutrition is still insufficient. A number of policies in the food sector have been issued such as Act Number 18 of 2012 (Food Act). This regulation explains that diversification of food is an effort to increase the availability and consumption of diverse, nutritious and balanced food based on local resource potential. The food diversification program is considered as a solution to food problems [9], especially with the presence of functional food in today's society [10]. Functional food aims to provide food diversity to meet people's needs, while providing good health effects on health [3]. Indeed, the existence of functional food increases people's tendency, or consumer preferences to choose healthy foods. Furthermore [3], the development of ingredient innovations in functional food in utilizing, as well as modifying bioactive compounds, can increase the spirit of food diversification towards a more positive direction. This is because besides being another form of diversification effort, functional food is truly believed to have specific physiological effects on health, which are primarily directed at people with non-communicable diseases such as diabetes, stroke, coronary heart disease, digestive disorders, and so on [7, 8]. With the existence of functional food, efforts to diversify food are increasingly innovative, and are able to improve the level of public health [5, 6].

Revealed that functional food policy in Indonesia had existed in 2005 with the Regulation of the Head of BPOM Number HK.00.05.52.0685 concerning the Basic Provisions for Functional Food Supervision, this regulation was subsequently revoked in 2011, with the issuance of the Head of BPOM Regulation Number HK.03.1.23.11.11.09909 concerning Supervision of Claims in Food Labels and Ads. Currently in regulation in Indonesia, functional food is known to be part of claimed food, in accordance with BPOM Head Regulation Number 13 concerning Supervision of Claims on Labels and Processed Food Ads [4].

Alternation of existing policies and berkembangannya functional foods in Indonesia, there should be a policy review related to functional food. This study aims to provide an overview of how changes in regulations related to functional food and to map future challenges for the regulation of functional food.

2. Methodology and analytical framework
The research method is qualitative and data used secondary data collected from the literature [11, 12]. The data is processed according to the needs analyzes and studies conducted descriptively [13], to determine the development of functional food regulations.

3. Results and discussions
In national regulations, there are 3 relevant laws and regulations in its regulation related to claimed food within the framework of consumer protection and product innovation. There are 8 regulations at the level of Government Regulations and Presidential Regulations, 4 regulations by the Minister of Health, 5 regulations on the Drug and Food Control Agency, 4 ministerial regulations that support and harmonize claimed food arrangements, and at least 3 regional regulations that provide color to regulations related to security food and nutrition at the regional level. All of these regulations reflect that the government and regional governments pay attention to the community regarding the need for proper and accountable food consumption

3.1. Foods policy and regulations
Results of identification of functional food regulation in Indonesia, first, Act Number 36/2009 (Health Act). Article 110 explains that every person and/or legal entity that produces and promotes food and beverage products and/or is treated as processed food and beverage technology is prohibited from using deceptive words and/or accompanied by unproven claims the truth.
Act Number 18/2009 (Food Act), in Article 1 number (1) it is stated that Food is anything that comes from biological sources of agricultural, plantation, forestry, fisheries, livestock, waters and water products, both processed and unprocessed which is intended as food or drink for human consumption, including food additives, food raw materials, and other materials used in the process of preparing, processing and/or making food or drinks, then Article 68 paragraph (1), mentioned by the Government ensure the realization of the implementation of food security in each food chain in an integrated manner. Article 101 paragraph (2) explains that claims on the label of processed food must be accountable for the truth of the claim. Article 108 paragraph (3) letter b, also describes rules regarding Food Safety Requirements, Food Quality, and Food Nutrition, as well as food label and advertisement requirements as referred to in paragraph (2) letter b, for Processed Food, carried out by government institutions implementing government duties in the field of drug and food supervision. Furthermore, it is affirmed in Article 91, that any Processed Food either domestically produced or imported for trading in retail packaging is required to have a Circular License. In this Law, it is seen that arrangements relating to processed or domestic/foreign processed food or beverages that are used for trading must have marketing licenses and claims on the label of processed food must be accountable for the truth of the claim.

The next regulation, related to functional food is Law Number 8 of 1999 concerning Consumer Protection. In Article 3 letters (d) and (e), it is stated that consumer protection aims to a) create a consumer protection system that contains elements of legal certainty and information disclosure and access to information, and b) foster awareness of the importance of consumer protection so that it grows honest and responsible attitude in trying.

Government Regulation No. 69 of 1999 concerning Food Labels and Ads, in Article 5 paragraph (1) explains that the information and or statement about food in the label must be true and not misleading, whether regarding writing, images, or any other form, what is meant by Incorrect Information is Information whose content contradicts the actual reality or does not contain the information needed so that the information can give a true description or impression of food, and what is meant by misleading information is a statement relating to matters such as the nature, price, ingredients, quality, composition, benefits or food security which although true can give rise to a misleading picture of understanding the food in question. Furthermore, in Article 6 paragraph (1) it is explained that the inclusion of a statement about the benefits of food for health in the Label can only be done if it is supported by scientific facts that can be accounted for.

Another related regulation is Government Regulation No. 28 of 2004 concerning Food Safety, Quality and Nutrition. In Article 1 number (4), it is stated that certain processed food is processed food for consumption for certain groups in an effort to maintain and improve the health quality of the group.

Head of Indonesia National Agency of Drug and Food Control Regulation No. 13 of 2016 concerning Claim Control on Processed Food Labels and Ads, in Article 1 Point 3 it is stated that Claims are all forms of description stating, suggesting or indirectly stating the specific characteristics of a food relating to the origin, nutrient content, nature, production, processing, composition or other quality factors. Furthermore, it is explained that the determination of claims on food labels and advertisements takes into account: a) the type, quantity and function of nutrients or food components, b) the amount of reasonable food consumed a day, c) balanced nutrition consumption patterns, d) general health conditions; and d) the feasibility of food as a carrier of nutrients or food components.

Head of Indonesia National Agency of Drug and Food Control Regulation No. 21 of 2016 concerning Food Category. In Article 2 paragraph (2), explained the Food Category for drinks is found in: a. 01.0 Dairy products and analogues, except those included in the category 02.0, m. 13.0 Food products for special nutritional purposes, and n. 14.0 Beverages, excluding dairy products. In addition, there is also the Head of Indonesia National Agency of Drug and Food Control Regulation No. 21 of 2015 concerning Procedures for Approval of Clinical Tests. Article 2 of the regulation explains that the scope of this Regulation covers Clinical Tests conducted in Indonesia for: a. Drug; b. Herbal medicine; c. Health Supplements; d. Processed Food; and e. Cosmetics.

From the search results in the Indonesia National Agency of Drug and Food Control registration database there are three mocaf flour-based food producers and there is only one mocaf flour producer
company. However, these four companies are not in the category of functional/claimed food but are included in the category of processed food in general. The results of the identification of 8 regulations relating to food in general, the main object relating in detail and which is still valid with functional food is the Head of Indonesia National Agency of Drug and Food Control Regulation Number 13 of 2016. Regulations on Functional Food have been regulated in the Regulation of the Head of the Food and Drug Supervisory Agency HK.00.05.52.0685 of 2005 concerning Principal Provisions for Functional Food Supervision, then revoked replaced by Indonesia National Agency of Drug and Food Control Number HK.03.1.23.11.11.09909 of 2011 concerning Supervision of Claims in Food Labels and Ads. This regulation has also been revoked and replaced by Head of Indonesia National Agency of Drug and Food Control Regulation Number 13 of 2016 concerning Supervision of Claims on Labels and Processed Food Ads. Then Indonesia National Agency of Drug and Food Control also issued regulation Number 1 of 2018 concerning Supervision of Processed Food for Special Nutrition Needs.

3.2. Analysis of legal and institutional
Consumer Protection Act (Act Number 8/1999): This regulation is in line with Article 5 Paragraph (1), Article 21 Paragraph (1), Article 27, and Article 33 of the 1945 Constitution. Although the Protection Law Consumers published in 1999, but the regulation and enthusiasm aspects are still relevant to the provisions regarding claimed food in Indonesia. In Article 3 of this Law, it is clear that the purpose of consumer protection is "to create a consumer protection system that contains elements of legal certainty and information disclosure and access to information", and "raise awareness of business actors about the importance of consumer protection and is responsible for business", as well as in order to increase product innovation" to improve the quality of goods and/or services that guarantee the continuity of business in the production of goods and/or services, health, comfort, safety and consumer safety ". The key word in this regulation is that consumer protection becomes an aspect that needs attention in producing or producing claimed processed food products because consumers have obtained legal certainty, claims submitted honestly and responsibly, and in aspects of product innovation, producers must improve quality and guarantee continuity of production business by paying attention to health, comfort, safety, and consumer safety. These four criteria make producers and claimed food makers innovate their products.

In Act Number 36 of 2009 (Act of Health), there is an explanation aspect of the importance of regulation for claimable food products, namely in Article 110 "Every person and/or legal entity that produces and promotes food and beverage products and/or is treated as food and Processed technology drinks are prohibited from using deceptive words and/or accompanied by claims that cannot be verified". This article clearly warns every person or legal entity (producer) of processed food not to use deceptive words and claims that are not true on their products.

The existence of the Consumer Protection Act and the Health Act was then strengthened by the presence of a new Food Act, namely Act Number 18 of 2012. In Article 100 Paragraph (1) "Every label of food traded must contain information regarding Food with true and not misleading", and in paragraph (2)" Everyone is prohibited from giving statements or statements that are incorrect and/or misleading on the label". The consumer protection aspect of claimed food is clearly undisputed where claims for processed food products displayed on food labels must be true and not misleading. This is also in accordance with the purpose of food labeling. "Food labeling aims to provide true and clear information to the public about each food product that is packaged before buying and/or consuming food" (Article 96 Paragraph 1).

In Article 101 Paragraphs (2) and (3) of the Food Act, it is reaffirmed that "Everyone who states in the label that the food being traded is in accordance with certain claims is responsible for the truth of the claim", and "Label of Processed Food which is traded must contain information about designation, method of use, and/or other information that needs to be known about the impact of Food on human health." This indicates that every processed food product, which is produced and traded, and has certain claims, must be stated in the Food Label. Claims on the Food Label with certain claims must be accountable for the truth of the claim.
To implement the provisions of Article 102 paragraph (4), Article 103, Article 106 paragraph (3), Article 107, and Article 112 of Act Number 18 of 2012 (Food Act), it is necessary to have technical regulations in the form of Government Regulations concerning Food Labels and Ads. However, until now (June 2019) the regulation as the implementing provision of Law No. 18 of 2012 has not yet been issued. So based on the provisions of Article 152 of Law Number 18 of 2012 concerning Food that "When this Law comes into force, all provisions of legislation governing Food, are declared to remain valid as long as they have not been replaced or do not conflict with the Law this", it can still use the previous regulation, namely Government Regulation Number 69 of 1999 concerning Food Labels and Ads. Article 5 Government Regulations concerning Food Labels and Ads re-strengthen existing regulations (Related Laws) "Information and or statement about food in the Label must be true and not misleading, either concerning writing, drawing, or any other form" (Article 1), and Paragraph 2 "Everyone is prohibited from giving information or statements about food that is traded through, in, or with a Label if the statement or statement is incorrect and or misleading", based on these two verses the statement and statement on the label food must be true and not misleading.

Further explanation can be found in the attachment to this regulation, namely that what is named as incorrect information is a statement whose content is contrary to the actual reality or does not contain the necessary information so that the information can give an actual picture or impression of food. Then, what is meant by misleading information is a statement relating to matters such as the nature, price, material, quality, composition, benefit or food security which although true can give rise to a misleading picture of the understanding of the food in question. This provides understanding, in food products even though the true label content can only give a misleading interpretation about the product. For this reason, Article 6 Paragraph (1) is affirmed "The inclusion of a statement about the benefits of food for health in a Label can only be done if supported by scientific facts that can be accounted for". Scientific facts are the key words in this paragraph, wherein the explanation is explained that the statement can only be stated on labels or advertisements if scientifically it can be accounted for, among others, through laboratory tests or clinical trials.

While relating to the statement or can also be said as "Claim" about health benefits is a statement that certain food products contain certain nutrients and or non-nutritional substances that are useful if consumed or not consumed for certain groups, for example for children under age five years, elderly groups, pregnant and lactating mothers, and so on. An information statement on the nutritional content of food is contained in Article 32 Paragraph (1), namely "Inclusion of information on the nutritional content of food on the Label must be carried out for food which: a) accompanied by a statement that food contains vitamins, minerals, and/or other nutrients added; or b) required based on the provisions of legislation applicable in the field of quality and other nutrients ". This means that nutritional claims on food labels are only intended for products that actually contain vitamins, minerals and/or other nutrients added. Inclusion of nutritional claims is regulated in Article 33 Paragraph (1) "Inclusion of a statement on the Label that food is a source of nutrition is not prohibited as long as the amount of nutrients in the food is at least 10% more than the amount of nutrient that is recommended in one serving size for these foods ".

Regulation of the Head of Indonesia National Agency of Drug and Food Control Number 13 of 2016: This regulation can be said to be a basic provision in implementing regulations relating to claimed food in Indonesia. This policy is also a substitute for the Regulation of the Head of Indonesia National Agency of Drug and Food Control Number HK.03.1.23.11.11.09909 of 2011 concerning Supervision of Claims in Processed Food Labels and Ads, and Regulation of the Head of Indonesia National Agency of Drug and Food Control Number HK.00.05.52.0685 concerning Provisions Principal of Functional Food Supervision.

Claimed food regulations in the beginning were present as the term "functional food". This is indicated by the issuance of the Regulation of the Head of Indonesia National Agency of Drug and Food Control Number HK.00.05.52.0685 concerning the Basic Provisions for Functional Food Supervision in 2005. The consideration of regulation in 2005, rapidly developing various types of food products claimed to have benefits in maintaining and improving health which is commonly known as functional food,
besides that there is a commitment from the government to protect the public from circulation and the use of functional food that does not meet the requirements of security, quality, nutrition and labeling and advertising.

The term Functional Food is defined as processed food containing one or more functional components based on scientific studies that have certain physiological functions, proven to be harmless and beneficial to health. The criteria a) using materials that meet the quality standards and security requirements and other standards and requirements stipulated, b) have health benefits assessed from the functional food component based on the scientific study of the "Bestari Partner Team" (Peer Reviewers), c) served and consumed as food or drinks and d) have sensory characteristics such as appearance, color, texture, or consistency and taste that can be accepted by consumers. Functional food claims can consist of 1) Nutritional Claims, 2) Nutrition Function Claims, and 3) Health Benefits Claims.

The "Functional Food" regulation lasted six years, because in 2011 the government through the Indonesia National Agency of Drug and Food Control issued a Regulation of the Head of Indonesia National Agency of Drug and Food Control Number HK.03.1.23.11.11.09909 of 2011 concerning Supervision of Claims in Labels and Processed Food Ads. This regulation explicitly abolishes the Regulation of the Head of Indonesia National Agency of Drug and Food Control Number HK.00.05.52.0685 concerning Provisions on the Principles of Functional Food Supervision, in accordance with Article 32 "With the coming into effect of this Regulation, Regulation of the Head of Indonesia National Agency of Drug and Food Control Number HK.00.05.52.0685 of 2005 The Basic Provisions for Functional Food Supervision are revoked and declared invalid. In this regulation in 2011, the term functional food still exists but is only related to processed food which includes health claims with claims of other functions and/or claims for reducing the risk of disease. The term "Processed Food which includes claims" began to be introduced, which included nutritional claims, health claims, and claims for the glycemic index.

After five years (in 2016), a new regulation in the form of a Regulation of the Head of Indonesia National Agency of Drug and Food Control Number 13 of 2016. This policy replaces and revokes the Regulation of the Head of Indonesia National Agency of Drug and Food Control HK.03.1.23.11.11.09909 of 2011 concerning Monitoring of Claims in Labels and Processed Food Ads. In 2016, use the term "Claims on Processed Food Labels", including a) nutritional claims, b) health claims, and c) other claims. Indonesia National Agency of Drug and Food Control 13/2016 has not known the term functional food as the previous 2 regulations. This means that since 2016 the term functional food is no longer known in food regulation in Indonesia.

Claims on Processed Food Labels cannot be used for intermediate products which require further processing with the addition of other foodstuffs (Article 4). Claims on processed food, pay attention to a) type, amount and function of Nutrition or Food Component, b) reasonable amount of food consumed a day, c) balanced nutrition consumption pattern, d) general public health condition, and e) food feasibility as a carrier Nutrition or Food Components.

Indonesia National Agency of Drug and Food Control Regulation No. 1 of 2018, this regulation combines the five previous regulations into one, namely 1) Regulation of the Head of Indonesia National Agency of Drug and Food Control Number HK.03.1.52.08.11.07235 of 2011 concerning Supervision of Infant Formula and Infant Formula for Medical Purposes Specifically (State Gazette of the Republic of Indonesia of 2011 Number 602), 2) Regulation of the Head of Indonesia National Agency of Drug and Food Control Number 30 of 2013 concerning Supervision of the Advanced Formula (State Gazette of the Republic of Indonesia Number 708), 3) Regulation of the Head of Indonesia National Agency of Drug and Food Control Number 31 of 2013 concerning Supervision of Growth Formulas (Official Gazette of the Republic of Indonesia of 2013 Number 709), 4) d. Regulation of the Head of Indonesia National Agency of Drug and Food Control No. 33 of 2013 concerning Supervision of Special Beverages for Pregnant and/or Breastfeeding Mothers (State Gazette of the Republic of Indonesia Number 710 2013), and Regulation of the Head of Indonesia National Agency of Drug and Food Control Number 3 of 2014 concerning Amendments to Head Regulations Indonesia National Agency of Drug and Food Control Number HK.03.1.52.08.11.07235 of 2011 concerning Supervision of Infant Formula.
and Infant Formula for Special Medical Purposes (Official Gazette of the Republic of Indonesia of 2011 Number 480). So that with the Regulation of Indonesia National Agency of Drug and Food Control Number 1 of 2018 concerning Supervision of Processed Food for Special Nutrition Needs, the five regulations are declared revoked and are no longer valid.

The regulation in this regulation categorizes Processed Food for Special Nutritional Purposes in 2 categories, namely 1) Processed Food for Special Diets, hereinafter abbreviated as PDK, is Processed Food which is specially processed or formulated to meet certain nutritional needs due to certain physical or physiological conditions, and 2) Processed Food for Special Medical Purposes, hereinafter abbreviated as PKMK, is Processed Food which is processed or formulated specifically for diet management for people with certain diseases/disorders.

PMKK can be used as a substitute food and/or additional food. However, of course there are different treatments. When used as a substitute for food, PMKK is intended as the only source of nutrition fulfillment, whereas if used as supplementary food, PMKK is intended to fulfill some nutritional needs. To be able to use PMKK both as a substitute food and supplementary food must be in accordance with the indications set by the doctor and/or under the supervision of a doctor.

4. Conclusions
Consumer protection and product innovation in the development of claimed food in Indonesia is very important, especially the existence of food with certain claims at the moment becomes the sorot of the world and begins to be loved by consumers in the country. For this reason, the need for regulation that always follows the development of science and technology is needed. Claimed food regulation can be categorized as a policy that always follows developments and international standards. This can be seen from the main reference in the preparation of the Indonesia National Agency of Drug and Food Control regulations related to claims for processed food products sourced from the Codex Alimentarius Commission

Regulation of Indonesia National Agency of Drug and Food Control Number 13 of 2016 which is the main technical regulation that forms the basis for the development and implementation of claimed food in Indonesia. As a regulation, of course this policy often gets records. Like, there is a desire to represent functional food policies in Indonesia, not with claimed food terminology or claims for processed food products.

Indonesia needs to develop guidelines for Functional Food Development and its claims directed at nutritional functions, improving function or reducing the risk of disease in the context of promotive and preventive efforts after the fulfillment of balanced nutrition. This guide can also be used as a reference for producers and program makers for claims on nutrition and health. Functional food needs to get attention so that its use has the correct scientific evidence basis, claims are not misleading and do not encourage wrong consumption patterns. The government and the business world need to support the development of a variety of functional food based on local Indonesian food through community empowerment by taking into account balanced nutritional value and food security.

Indonesia must immediately have regulations related to functional food, especially the Indonesian National Standard (SNI). It would be more beneficial if SNI for functional food was arranged in general, not for each product or for every benefit. SNIs that can be compiled are SNI terms and definitions, SNI for functional food guidelines and SNI code of practice for functional food claims.

References
[1] Prabowo R 2010 Kebijakan Pemerintah Dalam Mewujudkan Ketahanan Pangan di Indonesia Mediagro Volume 6 Nomor 2 (Semarang: Wahid Hasyim University) p 62–73
[2] Nasoetion M 2008 Tinggalkan Beras, Beralihlah ke Tepung Lokal 23 (Jakarta: Kompas) p 14
[3] Kartika I 2017 Membangkitkan Semangat Diversifikasi dengan Pangan Fungsional artikel lepas, accessed from https://pangan-fungsional.tp.ugm.ac.id/artikel/2017/62-membangkitkan-semangat-diversifikasi-dengan-pangan-fungsional.html, 1 November 2018
[4] Putera et al 2018 Regulatory Impact Assessment Kebijakan Pangan Fungsional Berbasis Mocaf di Indonesia Laporan Kemajuan Tahap I Program Insinas Riset Pratama Individu (Jakarta: Lembaga Ilmu Pengetahuan Indonesia)

[5] Teck C L, Mei W C, Hoi P T and Choon L K 2013 Functional Food: A Growing Trend among the Health Conscious Asian Soc. Sci. 9(1) 198–208

[6] Abby K T and Paul J M 2008 Innovation in the foods industry: Functional foods Innovation: Management, Policy & Practice 10(1) p 61–73

[7] German J B 2008 Looking into the future of foods and health Innovation (North Syd) 10(1) 109–20

[8] di Renzo L, Colica C, Carraro A, Cenci Goga B, Marsella LT, Botta R, Colombo M L, Gratteri S, Chang T F, Drol M, Sarlo F and De Lorenzo A 2015 Food safety and nutritional quality for the prevention of non communicable diseases: the Nutrient, hazard Analysis and Critical Control Point process (NACCP) J. Transl. Med. 13 128

[9] Wilson DW, Nash P, Buttar HS, Griffiths K, Singh R, De Meester F, Horiuchi R and Takahashi T 2017 The Role of Food Antioxidants, Benefits of Functional Foods, and Influence of Feeding Habits on the Health of the Older Person: An Overview Antioxidants (Basel) 6(4) 81

[10] Nair M K, Augustine L F and Konapur A 2016 Food-Based Interventions to Modify Diet Quality and Diversity to Address Multiple Micronutrient Deficiency Front Public Health 5(3) 277

[11] Carrie W 2007 Research Methods J. Bus. Eco. Res. 5(3) 65–72

[12] Cheng H G and Phillips M R 2014 Secondary analysis of existing data: opportunities and implementation Shanghai Arch Psychiatry 26(6) 371–5

[13] Sutton J and Austin Z 2015 Qualitative Research: Data Collection, Analysis, and Management Can. J. Hosp. Pharm. 68(3) 226–31

Acknowledgments
Thanks to the Directorate of Industrial Technology Development, the Directorate General of Research and Development Strengthening, Ministry of Research, Technology, and Higher Education who has funded this research through the National Innovation System Research Program (INSINAS) Program in 2018–2020. Priority Field Based on LPNK RISTEKDIKTI Flagship, with reference to the theme: Theme 1 Development of Local Resource-Based Functional Food WBS 6 Social, Economic, Policy, and Management, including identification of potential food-based local food, Education/Awareness, Behavior and Parenting, Economic, Social and Cultural Impacts, and Regulations, Policy and Management.