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REVIEW OF THE DOCTORAL THESIS

by mgr Silvia Dewi Sagita Andik titled “Food Waste at the Early Stage of Family in Urban Area:
A Case Study of Bogor City and Regency, West Java, Indonesia”

1. Legal basis for preparing the review

The review of the doctoral thesis by mgr Silvia Dewi Sagita Andik titled “Food Waste at the Early Stage of Family in Urban Area: A Case Study of Bogor City and Regency, West Java, Indonesia” was prepared in response to the letter BON.5100.12.2026 of 26 March 2026, signed by dr hab. Barbara Gołębiowska, prof. SGGW – The Chairwoman of the Council of the Discipline of Economics and Finance, Warsaw University of Life Sciences.

The procedure for awarding the doctoral degree is conducted on the basis of the Act of 20 July 2018 Law on Higher Education and Science (Polish Journal of Laws of 2024, item 1571, as amended) and Resolution No. 89–2022/2023 of the Senate of the Warsaw University of Life Sciences (SGGW) of 26 June 2023 on the adoption of the Regulations for conducting procedures for awarding the doctoral degree at the SGGW.

Information on doctoral theses is included in Article 187, Paragraphs 1–4 of the Act of 20 July 2018. In this review I will refer to these provisions of the Act.

The doctoral thesis was prepared under the supervision of dr hab. Joanna Rakowska, prof. SGGW.

2. Structure and substantive assessment of the doctoral thesis

The doctoral thesis by mgr Silvia Dewi Sagita Andik submitted for review is a written work [in accordance with Article 187, Paragraph 3 of the Act]. The doctoral thesis is 181 pages long. The structure of a doctoral thesis includes the following elements: Table of contents, Abstract in English, Abstract in Polish, Introduction, 7 Chapters, References, List of tables, List of figures, and Appendices. The main text, which constitutes 72,4% of the work, contains 7 Tables and 23 Figures.

The PhD candidate also appended to the doctoral thesis an abstract in Polish, because the doctoral thesis is prepared in a foreign language, i.e. in English [in accordance with Article 187, Paragraph 4 of the Act]. These **Abstracts** contain all the key elements of the doctoral thesis, including in particular: the main objective of the study, specific objectives, research hypotheses, as well as research methods, selected results and conclusions.

The doctoral thesis has a correct structure and is presented in a classic manner, i.e. from theoretical issues to empirical analyses. The work consists of seven interconnected chapters that form a coherent theoretical and analytical framework. The length of the chapters is justified by the scope and subject matter of the discussion. Chapter 5 is 31 pages long, and Chapter 2 is 30 pages long. The remaining

chapters are much shorter, ranging from 3 to 17 pages. The substantive content of each chapter corresponds to its title. The table of contents ensures the clarity of the overall structure of the work.

Introduction (pp. 19–25) contains a justification emphasizing the value of the scientific research undertaken. Furthermore, the PhD candidate identified a research gap in the literature on the subject regarding food waste at the early stage of family in urban areas. An important part of the Introduction was to demonstrate the novelty of the study.

Chapter 1: **Theoretical Background** (pp. 26–42) presents the theoretical aspects of food waste in households. The aim of this chapter was to establish the theoretical groundwork for further discussion. This chapter is crucial in the context of the doctoral thesis topic because it provides an introduction to the research conducted by the PhD candidate.

In the Chapter 2: **Conceptual Framework** (pp. 43–72), the PhD candidate, based on the literature on the subject, presented the issue of food security and sustainable food system, as well as interesting theoretical data on the sustainable household food waste management and food consumption management. In the next part of the chapter, she presented socio-demographic factors of food waste, the economic consequences of food waste, and cultural and religious context of food waste in urban areas, and in the final part – data on food waste among young consumers and at the early stage of family. This chapter is essential because it provides the background of the PhD candidate's own research.

Chapter 3: **Scope, Objectives, and Research Hypotheses** (pp. 73–92) contains the scope of the research, its thematic and spatial scope, its time scope of the research, the main objective of this study, specific objectives, research questions, and research hypotheses. For the purposes of the research, the PhD candidate also developed five definitions of key terms used in the study: 1) food waste, 2) early stage of family, 3) urban area, 4) household, and 5) respondent. Figure 4 is worth noting, as it presents the research framework of the doctoral dissertation.

Chapter 4: **Research Methodology** (pp. 93–99) describes the research methods used, as well as an evaluation of the research feasibility, including a description of the research design, resource availability, timeframe, research team, and ethical considerations.

In Chapter 5: **Results** (pp. 100–130) the PhD candidate presented the research findings regarding: 1) the socio-demographic characteristics of the respondents who participated in the study (age, period of marriage, number of children, the person responsible for managing food consumption – husband/wife – and household size), as well as economic characteristics (monthly food expenditures and monthly income); 2) the calculation of the amount of food waste (in grams per week and in grams per day per household) according to 15 main categories of food and 3) the causes of food waste. In the second part of the chapter, she presented the results of Partial Least Squares Structural Equation Modeling (PLS-SEM) analysis. I consider that the scope of this chapter, the research methods used and the interpretation of the results demonstrate that the PhD candidate possesses general theoretical knowledge in the discipline of economics and finance, as well as the ability to conduct independent scientific work [in accordance with Article 187, Paragraph 1 of the Act].

The aim of Chapter 6: **Discussion** (pp. 131–146) was to critically analyze and interpret the results obtained in the context of the research problem. The PhD candidate explained the significance of the findings and compared them with the results of other researchers' work. The obtained research results enrich the existing knowledge on food waste at the early stage of family in urban area of Indonesia. This part of the doctoral thesis presents an original solution to the scientific problem [in accordance with Article 187, Paragraph 2 of the Act].

Chapter 7: **Conclusions, Recommendations, and Limitations** (pp. 147–149), summarizes the doctoral thesis. In this chapter, the PhD candidate presents both the main research conclusions and recommendations. Noteworthy is attempt to identify the study's limitations and outline potential directions for further research.

I assess the adopted research concept and its implementation positively. The research topic undertaken by the PhD candidate is very important and timely. Food loss and waste have reached such high levels that they must be treated as a global problem. Food is lost and wasted along the whole agri-food chain – from production through handling, transportation, storage, and distribution, and then finally at consumption. According to data from the United Nations Environment Programme (UNEP), approximately 1.05 billion tons of food were wasted worldwide in 2022 in the retail, food service, and household sectors. This amounts to 132 kg per capita per year, of which 79 kg was wasted in households (60 kg in Poland and 55 kg in Bogor). Reducing food loss and waste will help improve global food security while also reducing pressure on the environment.

The work aligns with the resolution “Transforming Our World: The 2030 Agenda for Sustainable Development”, which sets out 17 Sustainable Development Goals (SDGs) and 169 targets. The goals and targets are based on an ambitious vision of the world focused on change. Reducing food loss and waste is critical to achieving Sustainable Development Goal 12 (SDG 12): Ensure sustainable consumption and production patterns, including Target 12.3 – By 2030, halve per capita global food waste at the retail and consumer levels and reduce food losses along production and supply chains, including post-harvest losses. Reducing food loss and waste will also have a significant impact on a number of other SDGs, including SDG 2, SDG 13, SDG 14, and SDG 15.

3. Objectives and research hypotheses of the doctoral thesis

Mgr Silvia Dewi Sagita Andik formulated: the main objective of the doctoral thesis, four specific objectives, four research questions and twelve research hypotheses.

The main objective of the doctoral thesis was *to provide a better understanding of the relationships between the selected socio-demographic characteristics (presence of child, age, household size, financial awareness), urban context (competency and culinary skill, knowledge of food planning and composting, material and proper infrastructure), food consumption management practices (healthy lifestyle, grocery shopping online, culture of food sharing, religion), and sustainable household food waste management during the early stage of family life in urban areas of Indonesia using modeling* (p. 78).

The main objective of the doctoral thesis was achieved through the pursuit of the following specific objectives (p. 79):

1. *To define the amount of food waste and reasons for the waste of the main 15 categories of food.*

2. *To examine the relationship between the selected socio-demographic and economic characteristics (presence of child, age, household size, financial awareness), food consumption management, and sustainable household food waste management.*
3. *To examine the relationship between the 3 aspects of Practice Theory (competency and culinary skill, knowledge of food planning and composting, material and proper infrastructure), food consumption management, and sustainable household food waste management.*
4. *To examine the relationship between urban characteristics (healthy lifestyle, grocery shopping online, culture of food sharing, religion), food consumption management, and sustainable household food waste management.*

The main objective and the specific objectives of the study were achieved by answering the following research questions (p. 79):

1. *How much food of different categories do early stage families waste and what are the reasons for the waste?*
2. *What is the relationship between socio-demographic factors (presence of child, age, household size, financial awareness), food consumption management, and sustainable household food waste management in early-stage families in urban areas?*
3. *What is the relationship between Practice Theory (competency and culinary skill, knowledge of food planning and composting, material and proper infrastructure), food consumption management, and sustainable household food waste management in early-stage families?*
4. *What is the relationship between urban characteristics (healthy lifestyle, grocery shopping online, culture of food sharing, religion) and food consumption management in sustainable household food waste management in early stages of a family?*

To operationalize the main objective and the specific objectives of the study PhD candidate formulated the following research hypotheses (p. 83–91):

- H1:** *The presence of a child has a direct negative influence on food consumption management.*
- H2:** *Younger people have a direct negative influence on food consumption management.*
- H3:** *A bigger household size has a direct negative influence on food consumption management.*
- H4:** *A household that has more financial awareness has a direct positive influence on food consumption management.*
- H5:** *Competency and culinary skills have a direct positive influence on food consumption management.*
- H6:** *Knowledge of food planning and composting has a direct positive influence on food consumption management.*
- H7:** *Material and proper infrastructure have a direct positive influence on food consumption management.*
- H8:** *Healthy lifestyle has a direct positive influence on better food consumption management.*
- H9:** *Grocery shopping online has a direct positive influence on better food consumption management.*
- H10:** *Culture of food sharing has a direct positive influence on food consumption management.*
- H11:** *Religion has a direct positive influence on food consumption management.*

H12: *Food consumption management has a direct positive influence on sustainable household food waste management.*

The main research problem is properly formulated and well embedded in the literature on the subject. The conducted research allowed for the verification of twelve research hypotheses. Eight hypotheses were statistically significant (**H1, H4, H5, H7, H8, H9, H11, H12**), and four hypotheses were statistically insignificant (**H2, H3, H6, H10**).

4. Evaluation of research methods

The strength of this doctoral thesis is its research workshop. The PhD candidate employed various research methods that enabled her to achieve the main objective of the study and verify the research hypotheses. The methods used are literature review, quantitative and qualitative methods and statistical analysis. The doctoral thesis is well-documented.

The PhD candidate demonstrated an ability to synthesize knowledge by conducting an extensive review of the literature on the subject. The References contains 371 references (unfortunately with many duplicates!).

The study used quantitative and qualitative methods, as well as Partial Least Squares Structural Equation Modeling (PLS-SEM). Quantitative methods included face-to-face surveys. The survey used a Likert-scale questionnaire (1–5). The qualitative method involved in-depth interviews with the respondents. The in-depth interviews were conducted to explore more detailed information about food waste production at an early stage of family. The data were processed and analysed using descriptive statistics and PLS-SEM. PLS-SEM models are a useful tool for multidimensional statistical and econometric analysis.

This study consisted of three stages in collecting data: (1) a literature review to obtain the structured questionnaire (2) a face-to-face survey using the questionnaire and (3) in-depth interviews were carried out with selected respondents to gain a deeper understanding of their responses to the questionnaire.

I view the selection of research methods favorably. The PhD candidate correctly applied the research methods and appropriately interpreted the results obtained. At the same time, it is important to note the high level of effort required to conduct this research.

5. Substantive comments

It is also the reviewer's responsibility to highlight any weaknesses in the doctoral thesis. While reading the work, several comments and suggestions emerged:

1. The research hypotheses must be consistent throughout the paper. Their content must not be changed. The note applies to four research hypotheses: H2 (pp. 84 and 128), H4 (pp. 85 and 128), H8 (pp. 89 and 129), and H9 (pp. 89 and 129).

2. In this study, the PhD candidate identified key elements of Practice Theory (competency and culinary skills, knowledge of food planning and composting, and the availability of materials and appropriate infrastructure) and urban characteristics (healthy lifestyle, grocery shopping online, culture

of food sharing, and religion). Therefore, I propose revising the main objective of the study. This revision is necessary.

3. Please check the correctness of the numbers in Table 4 or Figure 6.

4. The numbers shown in the figures must be identical to those given in the text. For example, the numbers shown in Figure 8 differ from those given in the text: 15.0% vs. 14%, and 14.3% vs. 13.33%.

5. The terms used in the figures differ from those used in the text. For example: 1) in Figure 12: *Too much portion and overcooking*, while in the text – *too much portions*; 2) in Figure 13: *Too much portion and overcooking*, while in the text – *too much and overcooking*; 3) in Figure 16: *Too much portion and overcooking*, while in the text – *too large a portion and overcooking*; 4) in Figure 22: *Grocery Online Shop and Religious*, while in the text – *online grocery shopping and religion*.

6. The acronym BPS has been explained as: 1) *Central Bureau of Statistics (BPS)*, 2) *Bogor Regency Statistics Office (BPS)*, 3) *Central Bureau of Statistics Indonesia (BPS)* and 4) *Indonesian Statistics Center (BPS)*.

7. The Doctoral candidate has not managed to avoid certain terminological inaccuracies. For example, she uses the following terms interchangeably: 1) *Partial Least Squares Structural Equation Modeling (PLS-SEM)* and *Structural Equation Modeling–Partial Least Squares (SEM-PLS)*, 2) *Ministry of Development Planning in Indonesia* and *Ministry of Development Planning (Bappenas)*, 3) *Evelyn Duvall's model of family development* and *Evelyn Duvall's theory of family development*, 4) *Cronbach's alpha* and *Cronbach alpha*, 5) *P-value*, *p-value* and *P-Value*, 6) *Generation Z* and *Gen Z*, 7) *15 product groups*, *15 product categories* and *15 food categories*, 8) *ASEAN* and *Asean*, 9) *early stage of family life*, *early stage families*, *early-stage families* and *early stages of a family*, 10) *edible and inedible items* and *edible and not-edible food*.

6. Formal evaluation of the doctoral thesis

The doctoral thesis is written in proper language, which demonstrates a thorough understanding of the subject. Nevertheless, it contains editorial errors. For example: *haw*, *Phycological Factors*, *Modeling*, *Square*, *...is presented in table and table*, *figure6*, *ingrams*, *appendixes*.

As a reviewer, I submit the following comments:

1. Errors in the names of the authors of the cited publication: Káraly [not Károly – p. 20]; Hasheimian [not Hasheiman – p. 32]; Garcia-Garcia [not Garcia – p. 51, p. 160]; Herzberg [not Hezberg – p. 61]; Abbot [not Abbott – p. 62]; Setti [not Seti – p. 171]; Khair Biek [not Biek – p. 66]; da Costa Pelonha [not Pelonha – p. 67]; Wahnström [not Wahnstrom – p. 159]; Šalaševičienė [not Salasevičienė – p. 155, p. 157]; Zięba [not Zieba – p. 70]; Duvall [not Duval – p. 77, p. 96]; Finkelstein [not Filkelinstein – p. 159], Bryła [not Bryla – p. 90], Mohd Noor Ismail [not Mn, I. – p. 169].

2. The names of the authors of cited publications are written differently in the text than in the References. For example: Abdallah and Ben Abdallah, Hazuchová and Naďa Hazuchová, Hatab and Abu Hatab, Bilali and El Bilali.

3. The acronyms used in the study have not been expanded: ASEAN, SWPCM, SES.

4. The text does not refer to Figure 3, Figure 4 and Figure 23.

5. In the References 26 of the same publications were listed twice. For example: *Grainger, M. J., Aramyan, L., Piras, S., Qusted, T. E., Righi, S., Setti, M., Vittuari, M., Stewart, G. B. (2018). Model selection and averaging in the assessment of the drivers of household food waste to reduce the probability of false positives. PLOS ONE, 13(2) (pp. 160 and 161).*

6. The References is missing too many publications – 98 in total! – that are cited in the text. For example: Szabo and Saha (2023); Srivastava et al. (2022); Karunasena et al. (2021); Polyportis et al. (2024); Ville et al. (2015); Czyżewski et al. (2020); Niluh et al. (2015); Niluh et al. (2022); Sarangi et al. (2024); Falasconi et al. (2019); Becker (1965); Mishra et al. (2022); Lüdeke-Freund et al. (2018); Canali et al. (2016); Hellwig et al. (2022); Wold (1982) et cetera.

7. Not all bibliographic entries are correct and complete. For example:

- Chikanda A., Crush J. & Frayne B. (2017). Migration and urbanization: Consequences for food security. In B. Frayne, J. Crush, and C. McCordic (Eds.), *Food and nutrition security in Southern African cities*. London: Routledge and Earthscan [not *Chikanda, A., Crush, J., & Frayne, B. (2024). Migration, urbanization and consequences for food security. In Migration and Urbanization: Consequences for Food Security. Taylor & Francis*].
- d’Orville H. (2020) is the author of the article: Urbanization, innovation and governance: The quest for sustainable development, *Cadmus*, 4(2) [not *S. Káraly (2019) Urbanization, Innovation and Governance, Cadmus Journal, vol. 4(5)*].
- Kwasek, M., Maciejczak, M., Wrzaszcz, W., & Zegar, J. S. (2018). From the research on socially-sustainable agriculture [48]. Monographs of Multi-Annual Programme, No. 84.1, Institute of Agricultural and Food Economics – National Research Institute, Warsaw [not *Kwasek, M., Maciejczak, M., Wrzaszcz, W., & Zegar, J. S. (2018). Global and national conditions of the sustainable development of agriculture: Economic assessment of external effects and public goods in agriculture. Sustainable agriculture and food security. Institute of Agricultural and Food Economics – National Research Institute, Poland*].
- Martianto, D., Diana, R., Baliwati Y. F., Sukandar, D. & Hendriadi, A. (2024). The quantity and composition of household food waste: Implications for policy. *PLoS ONE* 19(6) [not *The quantity and composition of household food waste. PLoS One 19(2)*].
- United Nations Environment Programme (2021). *Food Waste Index Report 2021*. Nairobi [not *Food Waste Index. (2021). UNEP food waste index report 2021*].
- Incorrect journal title: Hasibuan, M. R. (2022). View of islamic law on the maintenance of children against parents. *International Asia Of Law and Money Laundering*, 1(4), 265–269 [not *Hasibuan, M. R. (2022). Islamic law on the maintenance of children against parents. International Journal of Advanced Multidisciplinary Learning*, 1(4), 265–269].
- The journal number and page range were not provided. For example: *Bhatia, A., & Sharma, S. (2023). Identifying determinants of household food waste behavior in urban India. Cleaner Waste Systems*.

8. Not all literature items in the References are arranged alphabetically.

The presented examples of errors do not undermine the substantive value of the doctoral thesis.

7. The question to the PhD candidate

Given the enormous scale of food waste in households around the world, every effort should be made to reduce it. To reduce and prevent food waste, it is essential to take comprehensive actions at both the macro level (e.g., social education, government campaigns, food sharing initiatives) and at the micro level (conscious consumers habits). Could you please identify what actions should be taken at the macro and micro levels to effectively combat food waste in households at the early stage of families in the urban areas of Bogor City and Regency?

8. Conclusion

The doctoral thesis by mgr Silvia Dewi Sagita Andik titled "Food Waste in the Early Stage of Family in Urban Areas: A Case Study of Bogor City of and Regency, West Java, Indonesia," is an original scientific work that presents interesting research results. This study is significant from both a scientific and practical perspective.

The literature review and the critical analysis of the current state of knowledge on food waste, as well as the selection of research methods, discussion of the results, and their interpretation, represent an unquestionable achievement by the PhD candidate. The doctoral thesis demonstrates the PhD candidate's general theoretical knowledge in the discipline of economics and finance and confirms the ability to conduct independent scientific.

The substantive and editorial comments presented in the review do not undermine the essential values of the doctoral thesis but constitute guidelines for improving the PhD candidate's scientific workshop.

In conclusion, I find that the doctoral thesis submitted for review by mgr Silvia Dewi Sagita Andik titled "Food Waste at the Early Stage of Family in Urban Area: A Case Study of Bogor City and Regency, West Java, Indonesia meets the requirements of Article 187, Paragraphs 1–4 of the Act of 20 July 2018 Law on Higher Education and Science. On this basis, I request to the Council of the Discipline of Economics and Finance SGGW to accept the doctoral thesis and to admit it to a public defence.

Mariele Kwaseh