



Smallholder Farmers Market Options Within the Emerging Agri-Food Value Chain

Shaf Rijal Ahmad¹ and Kodrad Winarno²(✉)

¹ Vocational Program of Agricultural Technology, Indonesian Agricultural Engineering Polytechnic, Tangerang, Indonesia

shafrijal_ahmad@yahoo.com

² Agricultural Development Polytechnic of Yogyakarta - Magelang, Yogyakarta, Indonesia

wiwindkln@gmail.com

Abstract. Agriculture in Indonesia is facing challenges in the mid of agri-food value chain transformation. The transformation allows farmers to grow, however this also presented more barriers particularly for smallholder farmers with unfavorable characteristics. Unfortunately, these farmers are dominating agriculture in Indonesia. The objectives of this paper are to identify and describe market options for smallholder farmers and the value offered by the market and to identify and describe how smallholder farmers can participate in the emerging market. Relevant articles, reports, and thesis from the different regions were reviewed to gain and discuss information related to the topic. This paper showed that smallholder farmers have opportunities to participate in the different market chains and obtain value from them, such as local markets, supermarket chains, food manufacturer chains, and e-marketplaces. In fact, in certain conditions, the local market channels can be more beneficial for smallholder farmers. However, to increase their opportunity to participate within these market channels, they have to upgrade their production and governance form and this cannot be achieved without external support. It requires a supportive external environment such as infrastructures, financial access, and legislation. These can be provided by external agents from the government, Non-Government Organizations, research agencies, and private sectors. Furthermore, considering the emergence of e-commerce platforms in the agri-food value chain, it will be important to investigate how e-commerce platforms can help farmers to be more integrated with the emerging agri-food value chain system.

Keywords: Market upgrading · Value upgrading · Smallholder farmers · Agriculture

1 Introduction

As one of the essential sectors in Indonesia, agriculture is facing a serious challenge in the middle of agri-food value chain transformation. This sector provides food for more than 270 million people and more than 27,6 million households' economies depended on it [1, 2]. During the pandemic, agriculture has shown its reliance on facing the

© The Author(s) 2023

A. G. Abdullah et al. (Eds.): SEAVEG 2021, ABSR 23, pp. 20–28, 2023.

https://doi.org/10.2991/978-94-6463-028-2_4

economic crisis which could not be achieved by most other sectors [3]. Meanwhile, the agri-food value chain has been transforming and this presents more opportunities for agriculture development. However, the data showed that despite agriculture still being able to contribute around 9,9% of GDP, the trend tended to decline. This is challenging for agriculture development since this sector is dominated by groups of smallholder farmers that mostly are unskilled farmers with a low level of education. The average land tenure was only 0,2 hectares and this was disadvantageous in achieving the scale of economies [1].

As reported that in the last decades, the global agriculture value chain has been transforming. During the period 1999 to 2009 traditional retailers had dominated the Indonesian market, however, it was also reported that the number of supermarkets had increased dramatically [4]. The rise of income, urbanization, and liberalization of the food industry was part of the reason for the transformation [5]. There were changes in how the market works and shortened, also how consumers fulfill their needs and access the market. Packaged products which were dominated by dry processed food was increased by around 75% [4]. Furthermore, e-commerce has emerged in the last few years, particularly after the pandemic Covid-19. The emergence of the e-marketplace and the changes in consumer behavior have transformed the agri-food value chain to the next level. It was reported that a big retailer in Indonesia shut their national network store as the impact of industry transformation and the changes in consumer behavior [6].

Agri-food value chain transformation and market growth essentially have offered more opportunities for farmers. The market was improved and the demand was increased. Many farmers adapted to this situation by changing their business from a subsistence farm into a more commercial one which was reflected in chemical fertilizers and agriculture machinery utilization [7]. On the other hand, the situation has also presented more challenges for smallholder farmers. Entering a new market was not easy for them because they had to meet higher quality and safety standards and minimum quantity [8, 9].

Meanwhile, smallholder farmers' characteristics tend to impede them to improve their capability. Lack of financial capital and limited access to financial resources was the situation faced by these farmers [10]. These situations lessened their opportunities to access inputs and technology, which enabled them to compete within the emerging value chain system [7]. Smallholder farmers also tended to face difficulties to improve technical skills, networking, and scale of the economy [11, 12]. It can be worsened if there were no supporting external factors, such as market access restrictions, weak infrastructures, regulations, and policies [13].

Considering the importance of agriculture and smallholder farmers as the major actors involved in this sector, what are the options for smallholder farmers to participate within the emerging value chain system, and how? The paper objectives are 1) to identify and describe market options for smallholder farmers and the value offered by the market, 2) to identify and describe how smallholder farmers can participate in the emerging market.

2 Methods

Different relevant resources were reviewed to answer the research question and objectives. The question and objectives were used as a guide to determine the search boundaries. This paper reviewed electronic journal articles, reports, and thesis in English and Indonesian language only that were retrieved from google scholars. This paper review incorporated theoretical framework articles and empirical evidence, particularly those that involved smallholder farmers who produce different commodities (shallot, cowa fruit, mango, potatoes, and also rice) from different countries: Asia, Africa, South America, and Indonesia. The search terms used such as farmers' market participation, agriculture value chain, and collective action. The search result was validated by seeing the relevance of the articles and other sources. The collected information from different sources was compared and contrasted to capture a more comprehensive phenomenon before being presented in a written work.

3 Results and Discussion

A value chain is a process to add the value of a product and its distribution to consumers [14, 15]. It involved a combination of technology, materials, labor, processing, marketing, and product distribution [14]. This also comprises horizontal and vertical chain networks and value governance mechanisms [13]. This system is not only delivering products to consumers but also offering value to consumers or fulfilling the value demanded by consumers. In return, the actors who can present the value will obtain more benefits.

Market upgrading was one of the suggested approaches to capture more benefits agri-food value chain system [13]. Different types of markets presented different characteristics and benefits [16, 17] and also present different barriers [9]. In the value chain system that aimed at the local market, there was a minimum requirement on public standards [9]. The market barriers were lower than in supermarket chains or export chains. In this market type, producers were usually small, implemented conventional production systems, and involved high volume produces but captured relatively low value [13]. This is also found in other studies, which suggested local market tends to offer less value to producers [8–10, 16]. However, a study in Yogyakarta showed that if producers were able to perform product upgrading (growing their commodities with no chemical inputs, improving product packaging), they could target the middle-high income consumers that also fulfill their needs in the local market and sell their produce directly to them [18]. This study showed that there is a lucrative market niche within the local market. The benefits of selling products or commodities to the local market are producers could earn money right after the transaction, they did not have to share their profit margin with intermediaries, and the transportation cost was also relatively low.

In the middle-high income market, producers may deliver a lower volume than in the low-income market, however, they may also generate a higher value. In this type, farmers tend to work with larger intermediaries such as supermarkets [13]. To access this market, they were required to fulfill the minimum requirements and quality standards [9, 19]. This often hampers small producers to enter this market. For smallholder farmers, there were challenges regarding farm capacity, a scattered location, and remoteness from

collection facilities, which lead to a higher transaction cost [20]. Therefore, smallholder farmers were less competitive than the bigger farm. In Africa, smallholder horticulture farmers had to compete to enter supermarket chains not only with the domestic bigger farm but also with farmers across national borders [21].

Working under contract is common in the middle-high income market. Studies showed working under contract can improve smallholder income and welfare [22]. This also enabled producers to incorporate the emerging markets for processed goods and export commodities [23]. Having more integrated coordination may also lead to a better situation for farmers, for instance, information-sharing, a more stable market, and reducing intermediaries. However, buyers or lead firms would have more control than producers over the production process [24]. The imbalance of power has presented drawbacks for smallholder farmers. Since the firm led the coordination, the value distribution was not always beneficial for smallholder farmers [25, 26]. Payments for supplies were not always instant [21] and this made their financial to pay next production burdened. This was not fit for smallholder farmers who already have financial problems for producing their commodities. Therefore, despite farmers mostly gaining value from supplying supermarkets, it is often problematic for smallholders to enter this high-value chain system [27].

Regarding transaction cost, a study in Asia highlighted that smallholder farmers can enter the middle-high income market through intermediaries to address the transaction cost problem [28]. Farmers did not have a direct connection to the supermarket chain. They access the supermarket chain through suppliers or wholesalers. Thus, the requirements on product quality or volume were managed by the intermediaries. The question is how beneficial this value chain system was for smallholder farmers since this still involved a long chain and the value distribution may not be proportional?

There is an option for smallholder farmers to reduce intermediaries so that they can connect to the middle-high market. The role of intermediaries can be substituted by farmers themselves if they work collectively under a group. This enables smallholder farmers to be able to participate in the middle-high income market and improve product value and manage buyer's requirements, as shown in the potatoes case, cowa-mangosteen case, and mango and cashew nuts case [10–12]. Furthermore, many studies suggest that collective action can help smallholder farmers to address market imperfection problems, for instance reducing transaction costs, accessing finance, and improving bargaining power [8, 10, 16, 29]. Thus, it is suggested that smallholder farmers need to work collectively to improve their market participation and gain value from it.

The other market type that can be entered by smallholder farmers was the producer-driven market [9]. Some studies indicated that the opportunities for smallholder farmers to enter producer-driven markets were quite open. It was reported that Food and Agribusiness Multinational Enterprises wanted to involve smallholder farmers as their strategy to secure a long-term supply of agricultural produces since there was potential to improve yields per hectare, which might not be achieved on a larger farm [30]. This is also part of their strategy to expand their markets in emerging and developing countries [31].

In this market chain, food manufacturers play a significant role in organizing the supply chain. Food manufacturers have to shift from short-period transactional into a

long-term cooperative relationship [30], which means the coordination between smallholder farmers and food manufacturers were more integrated. This may present benefits for farmers since the market information and access were clearer. The quality requirements may also be lower than the supermarket chain since the food manufacturer took over in maintaining the safety and food quality issues and this could ease smallholder farmers to participate within the market channel [9]. However, there was also evidence that some food manufacturers also require a high-quality input, which means farmers have to maintain their on-farm production practices [18]. Therefore, entering this type of value chain can also be complicated for smallholder farmers since the requirement could be more complex to fulfill the demanded materials input quality by the food manufacturers.

Nowadays, farmers, including small-scale producers, have more options to participate in different value chain systems. E-commerce could be an answer to manage challenges faced by smallholder farmers such as high transaction costs and limited market information. This platform also presents benefits for consumers, regarding time efficiency and transportation cost [32]. E-commerce has enabled producers to improve market participation and firm new contacts, new customers, vendors, and increase sales [33]. This platform could replace the role of intermediaries and assist farmers in creating value [34]. This study also showed that e-commerce could be an option for smallholder farmers to access different markets since they can sell their produce in small volumes, in this case, 5 kg per transaction. This enabled vegetable producers such as chili and shallot to sell their produce in a low volume with a better price than through intermediaries. However, the presence of an e-marketplace also could increase competition that may lead to tighter price competition [32]. Moreover, adapting to new technology can be another challenge for old farmers with a low level of education.

Options to enter the new market are widely open for smallholder farmers. However, they have to improve their value chain to enter the market (Fig. 1). Previously, it was stated that there is a need to improve product value and combined with coordination upgrading, horizontally and vertically. Improving agricultural practices [18], planting more diverse potatoes varieties [10], or processing raw materials (cowa, cashew, mangoes) to processed food [11, 24] were examples of product upgrading and these cases showed that smallholder farmers can perform the product upgrading. Nevertheless, improving smallholder farmers' capability also requires support from the external environment.

The external environment can be interpreted as financial and non-financial support [35]. Financial support can be delivered by the government, Non-Government Organizations (NGOs), research agencies, and private. It can be argued that the government has bigger power than other actors to facilitate farmers' access to finance, for instance, providing grants and facilitating access to low-interest credit, since they have the authority to manage the national budget and initiate policies to ease financial access. The government also has more capacity to build coordination with the financial institution than other organizations. This can be seen in many cases [16, 36, 37].

Improving smallholder farmers' capability also requires non-financial support, such as legal and judicial systems, transport, electricity, water, and other infrastructure systems [37]. Regarding the non-financial support, it can be seen that government also has a major role in establishing pre-requirements for smallholder farmers' improvement. However,

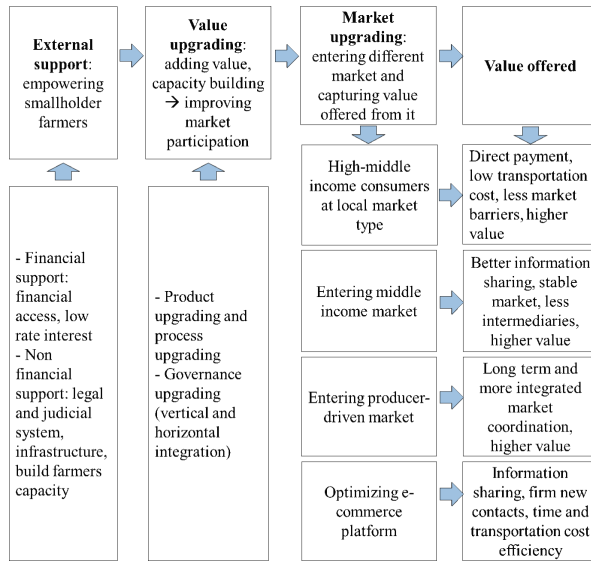


Fig. 1. Approach to improve smallholder farmers' market participation.

this does not mean that other external actors such as NGOs, research agencies, and the private sector have an insignificant role in the development.

NGOs and research agencies commonly facilitate farmers to develop social capital, organization's capacity, and marketing and management skills [8, 10, 36, 37]. Meanwhile, the private sector facilitates and directs them to meet quality and safety standards [16] as well as improve production capacity [37]. The private sector could be a good facilitator to improve market participation since they already have the access to local and global markets [38]. In the "5 kilo" case, an e-marketing platform in Indonesia, they were not only providing a marketing platform for farmers but also assistance to improve farmers' business capabilities [34].

On the other hand, some drawbacks emerge from each program delivered by those external actors. The government tends to have less collaborative interaction between farmers and facilitators since the programs were not demand-driven [16] or the interaction was less intensive and programs tended to be more general, not specific for each farmer and location since the government programs cover a wide range of areas. In that regard, NGOs may have more opportunities to deliver programs needed by farmers, such as marketing and technical improvement skills assistance [39, 40]. However, it was also found that NGOs may be tempted to have more intervention [16] and this led to an increase in farmers' dependency. Meanwhile, private sector assistance may present an imbalance sharing of benefits.

4 Conclusion and Recommendation

It can be concluded that agri-food value chain transformation, including the emergence of the e-marketplace, has presented more opportunities for smallholder farmers to improve

their value chain. Each market chain offers value to them, even in the local market. Smallholder farmers can participate in the more lucrative market segmentation of the local market chain. They also can opt for supermarket chains, food manufacturers, e-commerce, and participate within it. However, to improve their opportunities to participate in a different market chain, smallholder farmers also have to upgrade their production and governance form. This can be implemented by choosing the demanded variety, improving product packaging, or making processed food. To improve smallholder farmers' capability and capacity, they can integrate horizontally and vertically.

In addition, it was suggested to support these farmers with external intervention since the unfavorable characteristics possessed by them in general. Farmers alone may not perform the value upgrading approach. Therefore, they need support from external agents to provide prerequisite factors for the development, such as infrastructures, technical support, supportive policies and regulations, and ease in financial access.

In the Indonesian context, the government has a major role to empower smallholder farmers to improve their market participation. Government has more power related to budgeting, issuing policies and regulations, and also human resources. Therefore, it is recommended to design agriculture development programs based on a value chain framework that facilitates smallholder farmers to create value and deliver it to the right value chain.

Acknowledgment. We would like to thank the Indonesian Agricultural Engineering Polytechnic and Agricultural Educational Center for the support.

References

1. BPS. The result of inter-census agricultural survey 2018. Jakarta, Indonesia: Badan Pusat Statistik; 2018.
2. BPS. Sensus penduduk Indonesia 2020 (Internet). Jakarta, Indonesia: Badan Pusat Statistik; 2020. Available from: <https://sens.us.bps.go.id/main/index/sp2020>
3. BPS. Produk domestik bruto (lapangan usaha) (Internet). Jakarta, Indonesia: Badan Pusat Statistik; 2021. Available from: <https://www.bps.go.id/subject/11/produk-domestik-bruto--lapangan-usaha-.html#subjekViewTab3>
4. J. Dyck, A.E. Woolverton and F.Y. Rangkuti, Indonesia's modern food retail sector: Interaction with changing food consumption and trade patterns. EIB-97, U.S. Department of Agriculture, Economic Research Service, June 2012; 2012.
5. T. Reardon, C.B. Barrett, J.A. Berdegue, and J.F.M. Swinnen, Agrifood Industry Transformation and Small Farmers in Developing Countries. *World Development*, Vol. 37, no. 11, pp. 1717–27, 2009.
6. R. A. Y. Widyastuti, Giant Tutup per Juli 2021, Bos Hero Supermarket: Bukan Keputusan Semalam. 2021 May 26; Available from: <https://bisnis.tempo.co/read/1465818/giant-tutup-per-juli-2021-bos-hero-supermarket-bukan-keputusan-semalam/full&view=ok>
7. T. Reardon, K.Z. Chen, B. Minten, L. Adriano, T.A. Dao and J. Wang, The quiet revolution in Asia's rice value chains. *Annals of the New York Academy of Sciences*, vol. 1331, no.1, pp. 106–18, 2014.
8. E. Kaganzi, S. Ferris, J. Barham, A. Abenakyo, P. Sanginga and J. Njuki, Sustaining linkages to high value markets through collective action in Uganda. *Food Policy*, vol. 34, no. 1, pp. 23–30, 2009.

9. J. Lee, G. Gereffi and J. Beauvais, Global value chains and agrifood standards: Challenges and possibilities for smallholders in developing countries. *Proceedings of the National Academy of Sciences of the United States of America*. Vol. 109, no. 31, pp. 12326–31, 2012.
10. A. Devaux, D. Horton, C. Velasco, G. Thiele, G. López and T. Bernet, Collective action for market chain innovation in the Andes. *Food Policy*. Vol. 34, no. 1, pp. 31–8, 2009.
11. F. Kruijssen, M. Keizer and A. Giuliani, Collective action for small-scale producers of agricultural biodiversity products. *Food Policy*, vol. 34, no. 1, pp. 46–52.
12. A. Trebbin and M. Hassler, Farmers' producer companies in India: A new concept for collective action? *Environment & Planning A*. vol. 44, no. 2, pp. 411–27, 2012.
13. J.H. Trienekens, Agricultural value chains in developing countries a framework for analysis. *International Food and Agribusiness Management Review*. Vol. 14, no. 2, pp. 51–78, 2011.
14. G. Gereffi, J. Humphrey and T. Sturgeon, The governance of global value chains, 78, 2005.
15. R. Kaplinsky, Globalisation and unequalisation: What can be learned from value chain analysis. *Journal of Development Studies*, vol. 37, no. 2, pp. 117, 2000.
16. H. Markelova, R. Meinzen-Dick, J. Hellin S. Dohrn, Collective action for smallholder market access. *Food Policy*, vol. 34, no. 1, pp. 1–7, 2009.
17. H. Markelova and E. Mwangi, Collective action for smallholder market access: evidence and implications for Africa. *The Review of Policy Research*, no. 5, pp. 621, 2010.
18. S.R. Ahmad, Collective action: Improving Smallholder Rice Farmers' Value Chain in Yogyakarta, Indonesia (Master Thesis). (New Zealand): Massey University, 2017.
19. C. Abrahams, Transforming the Region: Supermarkets and the Local Food Economy. *African Affairs*, Nov no. 1, pp. 109, 2009.
20. O. Brown and C. Sander, Global supply chains and smallholder farmers. *International Institute for sustainable Development (iisd)*, 2007.
21. C. Muchopa, Agricultural Value Chains and Smallholder Producer Relations in the Context of Supermarket Chain Proliferation in Southern Africa. *International Journal of Managing Value and Supply Chains*. 2013 Sep vol. 30, no. 4, pp. 33–44, 2013.
22. S.O. Ogutu, D.O. Ochieng and M. Qaim, Supermarket contracts and smallholder farmers: Implications for income and multidimensional poverty. *Food Policy*, vol. 1, pp. 95, 101940, 2020.
23. S. Miyata, N. Minot and D. Hu, Impact of contract farming on income: Linking small farmers, packers, and supermarkets in China. *World Development*, 1; 37:1781–90, 2009.
24. M. Franz, M. Felix and A. Trebbin, Framing smallholder inclusion in global value chains - case studies from India and West Africa. *Geographica Helvetica*, vol. 69, no. 4, pp. 239–47, 2014.
25. J. Crush and B. Frayne, Supermarket Expansion and the Informal Food Economy in Southern African Cities: Implications for Urban Food Security. *Null*, 1;37(4):781–807, 2011.
26. A. Louw, H. Vermeulen, J. Kirsten and H. Madevu 1, Securing small farmer participation in supermarket supply chains in South Africa. *null*. Vol. 24, no. 4, pp. 539–51, 2007.
27. C.I.M. Andersson, C.G.K. Chege, E.J.O. Rao, M. Qaim, Following Up on Smallholder Farmers and Supermarkets in Kenya. *American Journal of Agricultural Economics*, vol. 97, no. 4, pp. 1247–66, 2015.
28. T. Reardon, C.P. Timmer and B. Minten, Supermarket revolution in Asia and emerging development strategies to include small farmers, *Proc Natl Acad Sci USA*. Vol. 109, no. 31, pp. 12332, 2012.
29. F. Lyon, Community groups and livelihoods in remote rural areas of Ghana: How small-scale farmers sustain collective action. *Community Development Journal*, vol. 3, no. 4, pp. 323–31, 2013.

30. Sjaow-Koen-Fa August R, Blok V, Omta SWF (Onno). Critical Success Factors for Small-holder Inclusion in High Value-Adding Supply Chains by Food & Agribusiness Multinational Enterprise. *International Food and Agribusiness Management Review*, vol. 19, no. 1, pp. 83–112, 2016.
31. H. Kharas, *The Emerging Middle Class in Developing Countries* (Internet). 2010. Available from: <https://www.oecd-ilibrary.org/content/paper/5kmmp8lncrn-en>
32. J.K. O'Hara and S.A. Low, Online Sales: A Direct Marketing Opportunity for Rural Farms? *Journal of Agricultural and Applied Economics*. 2020/01/16 ed. 2020;52(2):222–39.
33. S.D. Zapata, O. Isengildina, C. Carpio and D. Lamie, Does E-Commerce Help Farmers' Markets? Measuring the Impact of MarketMaker. *Journal of Food Distribution Research*, vol. 1, pp. 47:1–18.
34. A. Yashinta, Model Bisnis E-commerce produk pertanian (studi kasus pada PT. Limakilo maju bersama petani). *Jurnal Manajemen dan Bisnis (Performa)*, vol. 14, no. 2, pp. 138–51, 2017.
35. F. Vanni, *Agriculture and public goods : The role of collective action* (Internet). Dordrecht : Springer; 2013. Available from: <http://ezproxy.massey.ac.nz/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=cat00245a&AN=massey.b3326157&site=eds-live&scope=site>, <https://doi.org/10.1007/978-94-007-7457-5>
36. G. Faure, Characterization of a collective action between farmers' organizations and institutions in an innovative process to face liberalization in Costa Rica. *Journal of agricultural education and extension* (Internet). 2004;(3). Available from: <http://ezproxy.massey.ac.nz/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=edsagr&AN=edsagr.US201301003385&site=eds-live&scope=site>
37. J. Hellin, M. Lundy and M. Meijer, Farmer organization, collective action and market access in Meso-America. *Food Policy*, vol. 34, no. 1, pp. 16–22, 2009.
38. B.N. Dhananjaya and A.U. Rao, Namdhari Fresh Limited. In: Harper M, editor. *Inclusive value chain in India*. Singapore: World Scientific Publishing Co. Pte. Ltd; 2009.
39. J. Coulter, A. Goodland, A. Tallontire, and R. Stringfellow, Marrying farmer co-operation and contract farming for service provision in a liberalising sub-Saharan Africa. 1999; Available from: <http://ezproxy.massey.ac.nz/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=edsagr&AN=edsagr.GB2012101943&site=eds-live&scope=site>
40. R. Thorp, F. Stewart and A. Heyer, When and how far is group formation a route out of chronic poverty? *World Development*, vol. 33, no. 6, pp. 907–20, 2005.

Open Access This chapter is licensed under the terms of the Creative Commons Attribution-NonCommercial 4.0 International License (<http://creativecommons.org/licenses/by-nc/4.0/>), which permits any noncommercial use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license and indicate if changes were made.

The images or other third party material in this chapter are included in the chapter's Creative Commons license, unless indicated otherwise in a credit line to the material. If material is not included in the chapter's Creative Commons license and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder.

