

## Cashew Agribusiness Value Chain Study in Wonogiri Regency

By

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### ABSTRACT

Increasing the value chain of a commodity in a region can be a major factor in the development of the local economy in a region. The same is true for the cashew nut agribusiness in Wonogiri because Wonogiri Regency is the leading producer of cashew (*Anacardium Occindintale*) in Central Java Province with production approaching 90% of the total production in Central Java. Therefore, it is necessary to study the value chain of cashew nut production as the main commodity driving the economy of Wonogiri Regency along with the actors involved, critical points, and obstacles in it so that the objectives of this research can be achieved. With a qualitative descriptive approach, this research makes more use of field observations and surveys, and primary data is the main data source. The results obtained are that obstacles are still found in each value chain both at the input, production, collection, processing, and marketing stages, but efforts to overcome obstacles have been formulated since input, namely through efforts to strengthen institutional systems and farmer's group management, product diversification and produce derivative products, as well as coaching and mentoring managerial governance, accounting and marketing techniques for cashew agribusiness actors.

**Keywords:** Agribusiness, *Anacardium Occindintale*, Cashew Kernel, Value Chain, Wonogiri Regency.

### ABSTRAK

*Peningkatan rantai nilai suatu komoditas di suatu wilayah dapat menjadi faktor utama dalam pengembangan ekonomi lokal di suatu wilayah. Hal yang sama juga terjadi pada agribisnis jambu mete di Wonogiri karena Kabupaten Wonogiri merupakan produsen utama jambu mete (*Anacardium Occindintale*) di Provinsi Jawa Tengah dengan produksi mendekati 90% dari total produksi di Jawa Tengah. Oleh karena itu, perlu dikaji rantai nilai produksi jambu mete sebagai komoditas utama penggerak perekonomian Kabupaten Wonogiri beserta para aktor yang terlibat, titik kritis, dan hambatan di dalamnya agar tujuan dari penelitian ini dapat tercapai. Dengan pendekatan deskriptif kualitatif, penelitian ini lebih banyak menggunakan observasi lapangan dan survei, dan data primer sebagai sumber data utama. Hasil yang diperoleh masih terdapat kendala pada setiap rantai nilai baik pada tahap input, produksi, pengumpulan, pengolahan, dan pemasaran, namun upaya mengatasi kendala telah dirumuskan sejak input yaitu melalui upaya penguatan sistem kelembagaan dan pengelolaan kelompok tani, diversifikasi produk dan menghasilkan produk turunan, serta pembinaan dan pendampingan tata kelola manajerial, akuntansi dan teknik pemasaran bagi pelaku agribisnis jambu mete.*

**Kata Kunci:** *Anacardium Occindintale*, Rantai Nilai, Agribisnis, Jambu Mete, Kabupaten Wonogiri.

## INTRODUCTION

Regional development by prioritizing locality is known as Local Economic Development (LED), of course by building governance, cooperation and healthy partnership patterns from stakeholders with their respective advantages so as to spur economic activity in an area (Blakely & Leigh, 2013). Locality is a key element that will affect the success or failure of local economic development in an area (Pike et al., 2018). Aspects of locality can be tangible or intangible (Gibbs, 2005; Pike et al., 2018), tangible examples are the commodities and intangibles are the skills of the actors. One of the goals of local economic development is related to increasing *social welfare* which will drive the development of a region (Herlina Tarigan, 2020; Rahma, 2006). If the community is developing and prosperous, then it is directly proportional to the development of the economic activities of the people in it, so that the wheels of development will run because of production-distribution-consumption activities that go hand in hand and are complementary one another (Gibbs, 2005).

As with local economic development, there is also a value chain analysis covering all activities which are summarized in terms of: raw material sources, production, design, marketing, distribution to final consumers (Rostwentivaivi & Tustiyani, 2017). Value chain is a process of linkage between businesses as an effort to develop product diversification, increase production efficiency and increase the quality value of the commodity to be developed (Kumar & Rajeev, 2016). An increase in the value chain of a commodity in a region can be a major factor in the development of the local economy in the region if the commodity becomes the main activity of the economy which is characterized by absorbing large amounts of labor and capital flows (Kaplinsky & Morris, 2001).

There are two types of value chains, namely buyer-driven and producer-driven value chains (Avriganu, 2011). In a buyer-driven value chain, the main actors are large distributors with core brand competencies and broad marketing capabilities. They have strong competence to coordinate and form their own R&D, develop promotional designs and concepts, and are able to coordinate sales to overseas consumers or domestic retailers (Avriganu, 2011; Kumar & Rajeev, 2016). This chain is typical for labor-intensive industries and is particularly relevant to developing countries (Avriganu, 2011). In a producer-driven value chain, the main actors are the producers in the chain who control the vital technology, which determines the position in the final product market. They coordinate this value chain and are responsible for assisting the efficiency efforts of suppliers and end consumers (Kumar & Rajeev, 2016). This chain is typical of mid- and high-tech industries, such as automobiles, electronics, telecommunications, and the like. There is still one type of value chain that is less common than the two types mentioned above, namely the multi-pole chain which is characterized by many centers of strength in different parts of the value chain. The main characteristic of this type of global value chain is that there is no dominant "main company" as a whole with the power to determine the final form of the final product and therefore exercise control over the main activities throughout the chain (Avriganu, 2011). The cashew value chain is oriented towards the type of value chain driven by buyers, because cashew processing will continue to grow if demand continues to increase.

The long cashew post-harvest production chain from fruit picking to the end user causes critical points that can affect the sustainability of the cashew agribusiness process. To develop rural areas, villages are developing because of the *cashew nut with shell commodity production process* or has been processed into *cashew kernels* (Agyemang et al., 2018; Boafo et al., 2019; Elakkiya et al., 2017). In addition, collaboration between actors is very important, because cashew agribusiness has a long value chain, so to get high added value it is necessary to involve many parties who can be influenced by their *expertise* in the value chain, a touch of technology, good and honest marketing, higher quality. with a lower price (*value for money*) so it is often found that agricultural processing products look the same but the prices are very different (Dendena & Corsi, 2014; Fatah, 2007; Kumar & Rajeev, 2016; Syafa'at et al., 2005; R. Tarigan, 2004). Therefore, with a synergistic collaboration approach between parties, it is hoped that cashew agribusiness can be carried out properly, sustainably and provide tangible benefits, both economically and ecologically.

The value chain analysis explores four key aspects: (1) understanding the structure of the value chain (Kaplinsky & Morris, 2001; Muflikh et al., 2021); (2) the role of the actors who determine what,

how, who, when, where, and why the production process occurs (Humphrey & Schmitz, 2004; Muflikh et al., 2021); (3) identification of critical points in the production process and value chain levers to increase efficiency in supply and production (Avriganu, 2011; Muflikh et al., 2021); and (4) develop strategies or interventions for improvement at each point of production so that it can result in major changes in the entire value chain (Mitchell et al., 2015; Muflikh et al., 2021). Value chain analysis can provide an overview of the weaknesses faced as well as intervention and improvement efforts in aspects within the value chain itself, such as strengthening bargaining positions, participation and performance of actors and optimizing value distribution among actors (Muflikh et al., 2021; Rostwentiwaivi & Tustiyani, 2017). Therefore, this research was conducted with the aim of looking at the extent to which the actors are involved, the value of money that revolves in the stages of the value chain, the obstacles encountered and the problem-solving efforts that exist in each stage of the cashew wonogiri value chain.

## **METHODS**

The approach in this research is descriptive qualitative. This study utilizes primary data sources taken directly from direct field observations and interviews with several cashew entrepreneurs in Ngadirojo and Jatisrono districts as Wonogiri cashew processing centers consisting of eleven entrepreneurs, with five household entrepreneurs who only employ their families, and six small entrepreneurs having a workforce of less than ten people. The stages in the Wonogiri cashew agribusiness value chain that can be seen are the input stages, namely cashew logs obtained from the cashew farmers' gardens which are sold to collectors, then the cashew processing process to obtain cashew nuts as a special snack until it reaches the end consumers.

The values seen are in the production process starting from planting cashew trees, harvesting seeds, drying, stripping hard outer seeds such as shells, removing the epidermis, ripening, packaging and marketing. The cashew agribusiness value chain analysis tries to analyze the backward and forward linkages of the influencing sector, and see the linkages that exist in it (Dendena & Corsi, 2014; Kaplinsky & Morris, 2001; Putri, 2016). This value chain approach is also used to assess the relative importance of the factors that affect the competitiveness of production activities, the financial performance of various actors involved in each stage of the value chain, identify weaknesses and obstacles faced, and explore potential factors to improve chain performance. mark (Islam & Hasan, 2020; Kumar & Rajeev, 2016).

The approach used in this research is a qualitative descriptive approach because more data are taken from field surveys and primary data mining and there is little literature to strengthen the basis of the value chain method. The literature approach is carried out primarily to critically examine relevant scientific sources in the research topic so that it can help answer research questions more scientifically and systematically. A systematic literature review allows the identification of diversity in the synthesis of literature to identify weaknesses from previous studies and allow improvements to be made in future research (Islam & Hasan, 2020; Mitchell et al., 2015; Muflikh et al., 2021). Value chain analysis may be basically the same, but in its application different results are found depending on the research area (Islam & Hasan, 2020; Kaplinsky & Morris, 2001).

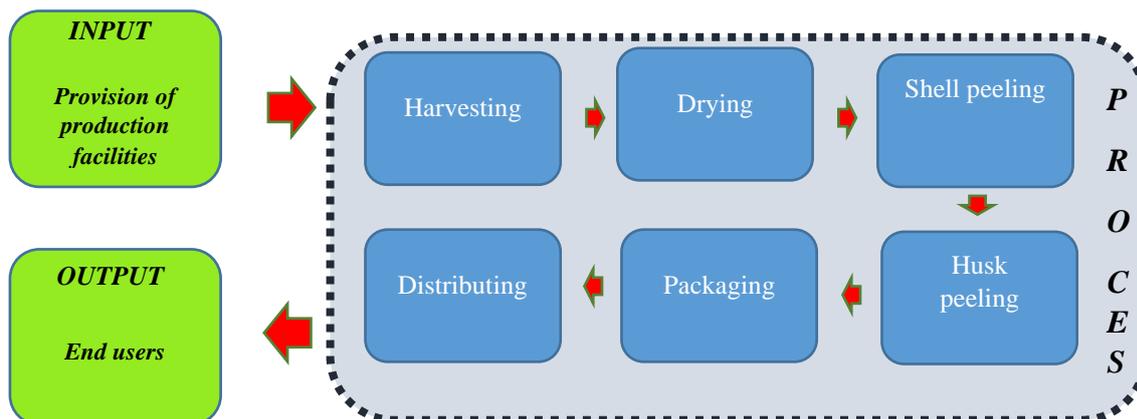
Value chain analysis describes activities ranging from raw material supply, product processing to the hands of consumers that can be used to understand the relationship between business actors and customers, identify problems and things that need to be improved or improved to increase product value and competitive advantage. (Boudi *et al.*, 2016; Rawlins *et al.*, 2018; H. Tarigan, 2007). In addition, value chain analysis serves to identify the stages of the value chain where the industry can increase added value for customers and streamline costs (Avriganu, 2011; Kaplinsky & Morris, 2001; Muflikh et al., 2021). This value chain analysis is important for local economic development, to increase the quality capacity of local products so that they have added value (Arsyad, 1999; H. Tarigan, 2007). This added value will increase the productivity and competitiveness of the region which results in an increase in the value of the regional economic impact (R. Tarigan, 2004).

## RESULTS AND DISCUSSIONS

In general, villages that have cashew plantations develop because of the cashew nut with shell commodity production process or processing them into cashew kernels to increase the added value of the product (Agyemang et al., 2018; Boafo et al., 2019; Putri, 2016). In India, which is the second largest cashew producer in the world, amounting to 745,000 tons in 2017 (*fao.org*) whose production continued to increase from 1990 to 2015 is the result of a long road of government efforts to improve the welfare and economic status of farmers so that farming is a profitable occupation (Elakkiya et al., 2017; Imai et al., 2015). Another benefit of cashew production is that it can improve the function of barren and tend to dry out soils to be more productive (Boafo et al., 2019; Das & Arora, 2017; Tola & Mazengia, 2019). Cashew plantations are considered to have significant benefits as a pioneer of economic development in areas with critical, arid or dry land (Agyemang et al., 2018; Dendena & Corsi, 2014; Ogunwolu et al., 2020; Samadi, 2010).

Cashew plantation area in Central Java Province (in 2018) 25,045 Ha (*epublikasi.setjen.pertanian.go.id*) with a total production of 10,093.45 tons in 2018 (*jateng.bps.go.id*) with a contribution of 8,985.96 tons of cashew seeds produced in Wonogiri so that 89% of cashews in Central Java Province come from Wonogiri Regency so that Wonogiri is very dominant in supplying cashew commodities in Central Java. In fact, in the last two years its production has exceeded the total production in Central Java Province which reached 12,119.3 tons in 2019 and 12,196.6 tons in 2020. In Wonogiri Regency, most of the cashew apples are not utilized. Only a small part is used as raw material for processed foods such as floss (*abon*) mixture or eaten directly as fresh fruit. Almost all cashew apples is left in the garden to be left to rot and become compost. While the actual fruit in the form of cashews is collected for then dried and sold in the form of dry cashew nut. In general, the cashew processing business is still relatively traditional and has been developed from generation to generation because the cashew plant is an endemic plant that grows and develops naturally in the Wonogiri Regency which spans an area of 182,236.02 hectares located in the Sewu Mountains zone.

The value chain starts from input activities in the form of providing cashew production facilities and processing it to being marketed to consumers in the form of cashew nuts (*cashew kernels*) to be processed as snacks or further processed. In this process there are several critical points that will determine the quality and price of the final product, such as the cashew picking process and the stripping process will pass a critical point during the drying process (figure 1), where is the time, place and method of drying / drying. Improper drying can reduce the quality of cashew seeds. Apart from this, other critical points can still be found that will affect the final yield of cashews, including the way of stripping, both stripping the outer shell (*shield*) and the skin that is not appropriate will reduce the integrity of the cashew seed by between 5-10% so that it will affect the quantity of the product and lowering the price, from grade A (intact 90-100%) to grade B (75-90%) there is a margin of Rp.10,000,-/kg. at the packaging stage there is also a critical point where branding will increase the selling price up to Rp. 5,000/kg due to additional screen printing on the cashew package, but this can be a differentiator for each provider because the characteristics of cashew entrepreneurs can be seen from the brand and Cashew wrappers have different market shares and segments. In addition, branded packaging will be more expensive but more acceptable to middle and upper consumers and it will be easier for cashew entrepreneurs to receive orders because the product packaging contains the location and phone number of the producer. Other variations of cashew products that are marketed are in vacuum and ordinary packaging. Vacuum packaging will increase the selling price of cashews, but the advantage is that the quality of cashews is maintained longer than ordinary packaging. The price difference in this packing is up to Rp.5.000,-/kg.



Source: Analysis result, 2021-2022  
 Figure 1. Wonogiri Cashew Processing Value Chain Chart

The selling price of dry cashew nuts at the collector level ranges from Rp.13,000 to Rp.18,000/kg depending on the season and quality of the beans, or an average of around Rp. 15,000/kg. From 1 kilogram of dry cashew logs, 250-350 grams of cashew kernels can be produced, and through the process of drying and peeling the epidermis, ±200 grams of peeled cashews (cashew kernels) are ready to be packaged and distributed. With the production of 12,196.6 tons of cashew nut, it can produce shelled cashew of ±2,439 tons. Cashew processed products also vary depending on the quality. For grade A cashews with 90-100% integrity, the selling price is around Rp.130,000/kg and grade B cashews with 75-90% integrity are sold for around Rp.120,000/kg, so the average cashew nut price is Rp125,000/kg. The price above is the price taken at the time of field observations, at December 2021-Februari 2022.

Table 1. Calculation of added value of Wonogiri cashew production (per 100 kg of cashew nut)

No.	Component	U Size	S Unit H Price	Amount (Rp)
<b>A. COST</b>				
1.	raw material	100 kgs	Rp.15,000/kgs*	1,500,000
2.	Labor	10 days	Rp.35,000/PPD**	350,000
3.	implicit cost	Rp.200,000	per 100 kgs	200,000
4.	explicit cost	Rp.130,000	per 100 kgs	130,000
TOTAL				2,180,000
<b>B. INCOME</b>				
1.	Cashew seeds	20 kg	Rp.125,000	2,500,000
2.	Outer skin	75 kg	Rp.800	60,000
TOTAL				2,560,000

Exp: \* = kilograms, \*\*=person per day

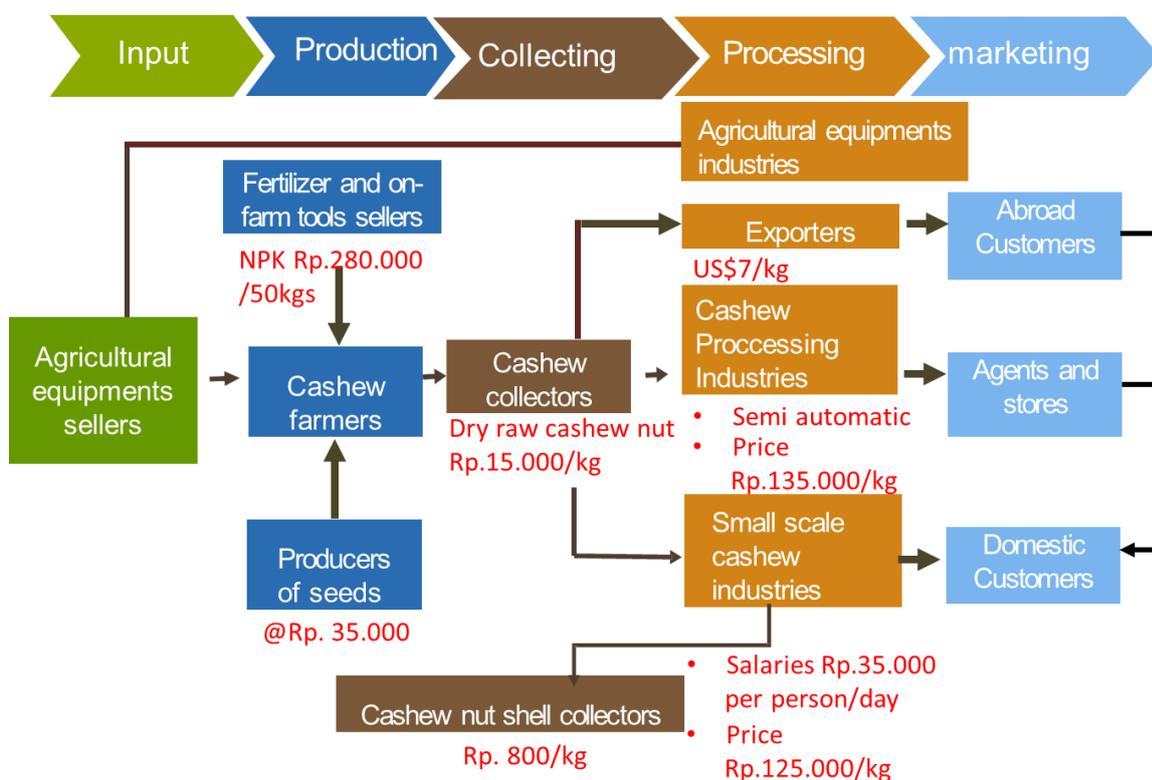
Source: Analysis results, 2022.

From field observations, it was found that cashew processing can provide added value of 15% if only selling cashews, and get added value of 17% if including selling the cashew nuts shell liquid (CNSL). Expenditures incurred in processing 100 kilograms of cashew nuts (table 1). The raw material component is dry cashew logs. The workforce component is a workforce that is experienced in opening cashews, with working hours between 6-8 hours per day. The implicit cost component, namely costs that are invisible and difficult to calculate in units, consist of fuel costs, taxes/retributions, personal safety equipment costs, insurance costs, equipment maintenance and operational costs, and unexpected costs. Explicit cost components are costs that are easy to calculate and can be seen in the expenditure of each production produced, namely the purchase of plastic wrap, the purchase of cardboard wrapping, screen printing costs, packaging costs and transportation or distribution costs. If

all the cashew logs from cashew farmers in Wonogiri Regency are absorbed by the cashew processing business, then the average turnover generated from the wonogiri cashew value chain process in Wonogiri Regency reaches ±Rp.62,438,438,400,000,- so that this cashew value chain activity become one of the economic drivers of Wonogiri Regency that cannot be underestimated.

The value chain of the wonogiri cashew processing is quite long and risky, but considering the limited vegetation that can provide ecological as well as economic benefits, the cashew plant becomes the main consideration. Not all of the cashew farmers in Wonogiri Regency only produce cashews, but some of them also process cashew seeds even on a household scale, so they don't rely on other people for wages, to reduce disguised unemployment in the main cashew producing areas, such as in Ngadirojo and Jatirono Subdistricts. The value chain process for processing cashew wonogiri in general can be seen in Figure 2.

## Cashew Processing Value Chain



Source: Analysis results, 2021.

Figure 2. Wonogiri Cashew Processing Value Chain

Talking about cashew processing value chain in Wonogiri Regency, several problems were found that could become obstacles in efforts to develop and increase cashew nut production. The problems found include: 1) in the Input stage there are still limitations in obtaining agricultural production equipment due to price increases and supply that does not meet the needs of all cashew farmers and will affect the productivity of cashew logs; 2) In the Production stage, there is still a shortage in the supply of fertilizers on the market, especially during the growing season for food crops which are present at the beginning of the rainy season, causing non-optimal flowering and the quantity of fruit produced due to lack of nutrients so that it will also affect cashew productivity; 3) At the collection stage, the main obstacle is the limited supply of cashews from farmers, because cashews only bear fruit once a year, so collectors must compete in finding producers (cashew farmers) who still have cashew stocks, and a perfect competition market will apply because farmers will sell it to collectors who are willing to give a high price. In addition, another obstacle is seen in cashew

productivity which tends to stagnate because it relies heavily on cashew plants which have been producing for years but pay less attention to regeneration, this is due to limited human resources because farmers only use knowledge that has been passed down from generation to generation. 4) In the Processing stage, it was found that irresponsible parties mixed wonogiri cashew with other regional cashews thereby reducing product quality, because it made wonogiri cashew products lose their characteristics, where wonogiri cashews can be recognized from a smaller shape, and has a distinct taste, sweeter and savory than cashew in other regions so that it will reduce the credibility of the cashew entrepreneur who consistently only markets wonogiri cashew; 5) at the marketing stage, there are still obstacles in the limited access to penetrate the global market due to constraints on production limits and continuity of cashew supply required by exporters, although the quality of wonogiri cashews is very good and meets the criteria for export. In addition, other obstacles were found related to financial managerial weaknesses because most of the household businesses started from farmers with limited production, then their business developed and formed a household-scale cashew production business or small business so that managerial and accounting capabilities were still limited.

Judging from business competition, cashew production in Wonogiri Regency does not find many obstacles, because each entrepreneur has its own segment and market penetration, so there is no unfair business competition. Special credit is intended for buyers who have become regular customers, who know the difference in the quality of cashew wonogiri with cashew from other regions, so that demand tends to increase from year to year. Demand will increase significantly during fasting and Eid, where demand can increase up to 300% compared to normal days (Source: Interview results, 2022).

The value chain in agribusiness strongly supports the added value of the products produced (Putri, 2016; Rostwentivaivi & Tustiyani, 2017) to maintain the sustainability of the cashew agribusiness value chain, efforts to improve support is needed between parties involved in every stage, from input to consumer. Therefore, institutional support and collaboration between institutions is very necessary because it will greatly affect the final result (Pike et al., 2018). The goals of collaboration in the development of cashew agribusiness include: (1) increasing the quantity and value added of the product (Fatah, 2007; Pike et al., 2018; Rostwentivaivi & Tustiyani, 2017; R. Tarigan, 2004); (2) expanding market penetration and increasing marketing reach (Fatah, 2007; Rostwentivaivi & Tustiyani, 2017; R. Tarigan, 2004); (3) increase capital to increase business scale in the long term (Arsyad, 1999; Fatah, 2007; Syafa'at et al., 2005); (4) improve the quality of agribusiness production (Fatah, 2007; R. Tarigan, 2004); (5) increasing production diversification opportunities (Fatah, 2007; Kumar & Rajeev, 2016; Syafa'at et al., 2005); and (6) accelerate the use and development of technology as needed (Budiatmanto et al., 2021; Islam & Hasan, 2020). The benefits of collaboration obtained by these wonogiri cashew agribusiness entrepreneurs are felt to be quite large because they can support business sustainability, increase sales turnover, expand markets, and develop knowledge and expertise as well as being able to open wider collaborations with other parties.

The value chain is also related to innovation. Innovation is a chain that is interrelated and supports each other and is complementary and has a backward-forward linkage in each subsystem (E. Malizia et al., 2020; EE Malizia, 1990; R. Tarigan, 2004). The benefits of innovation felt by cashew agribusiness actors include: (1) efficiency and increased business productivity; (2) increasing the quantity and quality of products; (3) increasing the technical capacity of agribusiness actors towards developing technology; (4) improvement of environmental quality due to the use of *side products* so that less waste is generated so as to increase environmental resilience to disasters caused by climate change; (5) an increase in the income of agribusiness actors which has an impact on improving the welfare of the community in the area around the agribusiness area; (6) efforts to improve technology that continues to develop to the next stage or we say *advanced technology* due to constant and/or increasing supply-demand (Agyemang et al., 2018; Dendena & Corsi, 2014; Fatah, 2007; Mamat & Sukarman, 2020 ; Matheus, 2019; Syafa'at et al., 2005). The innovations made in the wonogiri cashew agribusiness business include production systems, financial management and governance, as well as waste processing into by-products that reduce the quantity of waste and increase turnover.

## CONCLUSIONS

The wonogiri cashew value chain starts from input activities in the form of providing cashew production facilities and proceeds from production, collection, processing, to being marketed to consumers in the form of *cashew kernels*. In this process there are several critical points that will determine the quality and price of the final product. The value chain in cashew agribusiness strongly supports the added value of the resulting product with an added value of 15% if only selling cashews, and getting an added value of 17% if including selling the cashew nut shell liquid (CNSL). To support the sustainability of this value chain improvement effort, support is needed between parties involved in each stage in the form of inter-institutional support and collaboration. The benefits of collaboration obtained by these wonogiri cashew agribusiness entrepreneurs are felt to be quite large because they can support business sustainability, increase sales turnover, expand markets, and develop knowledge and expertise as well as being able to open wider collaborations with other parties. In addition, innovation is needed

The innovations carried out greatly support the value chain. The benefits of innovation include increased efficiency and increased business productivity, increased quantity and quality of products, increased technical capabilities of agribusiness actors towards developing technology, improved environmental quality due to the use of by-products, increased income of agribusiness actors, and efforts to improve technological development. The innovations carried out in the wonogiri cashew agribusiness business are carried out on production systems, financial management and governance, as well as processing waste into by-products that reduce the quantity of waste and increase turnover.

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