

Marketing Chain and Power Relation on Black Magic Wood (Agarwood) Commodities in Lombok Island

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Abstract. The global demand for agarwood (*Gyrinops verstepii*) is immense, hence the market price is skyrocketing. Sapwood (*gubal*) is the most valuable derivative product of the agarwood commodity. However, such derived compounds are not without value. White aloeswood, which is then processed into black magic wood (BMW), is one of the items that was once deemed trash but eventually saw tremendous demand. The purpose of this research is to investigate the flow of transformations in products from beginning materials to BMW manufactured products, the added value gained by every involved party, and the power relations among the parties in the BMW value chain. Data was gathered through observation, in-depth interviews, Focus Group Discussions (FGD), and document analysis. All the data was analysed descriptively. Several key results were achieved from this research: (1) commodities transformed from raw materials to finished products: wood waste carving → making of imitation carving → imitation carving processing → finishing → BMW products. (2) The biggest benefit gained by upstream players and leaving farmers and craftsmen behind. (3) The power relations among the parties revealed that large business actors control power and profit. Farmers and craftsmen only offer cheap wage labour in the midst of BMW industry with multiple profits.

1 Introduction

Agarwood has been known for centuries and is used for various purposes such as perfume, medicine, to religious and cultural rituals [1] [2]. Its use has even been recorded in various classical literary works [3]. Indonesia and other countries in the Southeast Asian region have also long been known as producers of agarwood from several existing species [4] [5]. Agarwood itself is a resin produced by several plants from many families, such as *Aquilaria* and *Gyrinops*. In Lombok, Sumbawa, and other parts of the Lesser Sunda Islands, the species of agarwood-producing plant that is widely found in nature and cultivated by the community

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is *Gyrinops versteegii* [6]. This species, particularly in Japan, has not been mapped as a source of agarwood-producing plants [7].

The process of forming agarwood resin itself has been traditionally understood by the community. The presence of resin is known from the interaction between two or three organisms, including the tree itself, fungi, and insects, which then interact to form agarwood resin [8]. Agarwood quality is traditionally measured by its resin content, degree of sinking in water, color, aroma, induction technique, formation time, and origin area. In simple terms, the measurement is divided into four grades, namely A (high), B (medium), C (low), and D (not qualifying). The more sophisticated technique for measuring the quality of agarwood is based on the color, aroma, and chemical compounds [9].

In Indonesia, the quality of agarwood is characterized by its resin content. The classification of agarwood according to the Indonesian National Standard (SNI) is divided into *gubal* (sapwood), *kemedangan*, and agarwood powder [10]. The agarwood with the highest economic value comes from the sapwood class. Sapwood is usually obtained from hunting. So far, the most popular hunting place is in the heart of the forests of Kalimantan. Hunters from West Nusa Tenggara, particularly from Lombok Island, are well known as agarwood hunters with good and tenacious skills [11].

Aside from hunting in nature, another effort to get agarwood is by induction on agarwood-producing trees that have been cultivated [12]. In Lombok Island, cultivating agarwood is surely becoming known by communities [13]. Agarwood induction is carried out because if we rely on natural processes, it can take up to 30 years [14]. Its models have been running for quite a long time, which, if traced back, has been since 1929. Since then, agarwood induction has continued to develop [15].

The yield of agarwood induction is still far from natural agarwood. However, its quality and quantity still need to be improved. The main expected target is to increase the resin yield. Wahyuni, Prihantini, and Anggadhania [16] who used *Fusarium solani* bioinduction with the Simpori technique achieved a yield of 0.032 percent. The result is too small; on the other hand, the residual waste from all agarwood-producing trees is quite large. This residual waste can be said to have no economic value. The wood from this agarwood-producing tree is also relatively soft, so it is not suitable for construction. Therefore, a lot of the remaining wood is wasted.

Seeing that the investment cost to obtain the sapwood is quite high, there are some efforts to utilize the waste to increase its economic value. One of the efforts is to make it into a craft that resembles sapwood chips. This artificial sapwood chip is known as *black magic wood* (BMW) [17] [18]. By creating BMW, hopefully it will substantially increase the added value of this item. Added value refers to the amount of increasing value of the products in each stage of production process [19]. It could be obtained through several ways, among others by preserving, diversifying products, and packaging. Technology plays an important role in increasing added value of the commodities [20]. BMW is an example of the use of technology and product diversification to gain value addition from agarwood.

This product was named BMW because it is obtained from the rest of the agarwood tree, whose resin has been harvested. Thus, it contains no resin at all or only a small amount of it. Other information also stated that there is a BMW agarwood whose source comes from Papua (interview with Ms. ENG, BKSDA NTB). The agarwood from Papua comes from the remnants of logged-over wood buried in the swamp [21]. This wood is then injected with agarwood resin so that it has a distinctive aroma similar to natural agarwood. The findings of Putro, *et.al.* [22] stated that BMW has the highest resin content compared to cultivated agarwood as a result of resin injection during the cultivation process. This process also resulted in a darker color change. Gusmailina's findings [23] even showed that there was an increase in the resin content 3–5 times from the previous condition. An increase also occurs in the volume contained after processing, which can reach 72%.

BMW is traded globally, with the Middle East being the most prominent market. [24]. Its demand is increasing since the supply of natural agarwood is decreasing while the demand on it is steadily increasing. Even though BMW is well-known for its artificial agarwood, its trade scheme is subject to CITES rules because this item is derived from endangered plant species [25]. By injecting agarwood oil and alcohol to low grade agarwood [26] BMW become more valuable, and the benefit gained from this item is quite significant.

This finding provides optimism related to the high added value obtained from BMW products. Although a quick technique has been found to distinguish between natural and artificial agarwood [27], the BMW commodity market does have a special segment, so that its market is still open widely.

To produce BMW, it takes a long process that involves many parties. The number of parties involved implies that there is added value for each party in the value chain. On the other hand, the length of the value chain also reflects the various interests involved in it. Therefore, it is important to look at the power relations between each party in the value chain.

Ribot and Peluso theorized power as a kind of thing that gives a subject the ability to obtain benefit from resources through mechanisms, processes, and social relations. If the property relations point out the claim over the right, access theory is concerned with multiple ways of gaining benefit from the resources [28]. By this theory, power relations among actors in BMW trading could be derived.

For this reason, this study intends to explore three main points: (1) the production flow of BMW; (2) the benefits gained by each party in the BMW trade; and (3) the power relations of each party linked to the BMW trade.

2 Research Methods

Research was conducted on Lombok Island, in the agarwood BMW production centers, and agarwood farmers around Lombok. Research was conducted in 2018 and 2019, and the site was revisited in 2020. This study took informants from several parties, including agarwood farmers, BMW craftsmen, local collectors, BMW agarwood collectors, and BMW agarwood wholesalers. In addition, the research team also conducted interviews with officials at the agency that handles agarwood policies, the BKSDA NTB. The agarwood centers that were targeted for research include Gegerung Village in West Lombok, Genggelang Village in North Lombok, Danger and Penakak Villages in East Lombok, and Ampenan in the city of Mataram.

Data was collected using several techniques, namely observation, in-depth interviews, Focus Group Discussion (FGD), and document studies. Observations are made to see how the daily activities are carried out in the BMW production and trading processes. Interviews were conducted with the parties to explore their views, understandings, and experiences in BMW production and trading practices. FGDs were conducted to explore the perspectives of each party as well as a medium for the triangulation of the methods of observation and in-depth interviews by bringing together the parties. Document studies were conducted to complement the data obtained from observations, in-depth interviews, and FGDs.

Data analysis of the production flow and the benefits obtained by the parties is carried out descriptively by making it a structured narrative. Meanwhile, to see the power relations in BMW trading, it was analyzed using the access theory from Ribot and Peluso [28,29].

3 Results and Discussion

3.1 BMW Producing and Marketing Chain and Benefit Obtained by Stakeholder

As a product in the agarwood trade chain, Black Magic Wood (BMW) was originally a remnant of the main product. Therefore, its existence was initially not seen as important by

agarwood business actors. The production process by cultivating wood that does not contain sapwood and then injecting it with low-quality resin causes it to be called fake agarwood [17] [18] [30].

The process of changing goods from low economic value to high economic value involves a process of innovation [31], it applies to the case of BMW. The remaining agarwood wood, which is considered to have the least economic value, is then carried out in the form of changes in shape and added value to produce more valuable ones. The emergence of BMW product innovation also cannot be separated from the differentiation of tastes for the aroma of agarwood in each place and the practice of enjoying agarwood. Differences in the consumption of agarwood also make it difficult to govern the trade system for this commodity [32].

The production process of agarwood to become BMW agarwood goes through several stages. The first is the process to produce wood carving residue. As the name implies, the remaining wood from carving comes from agarwood, which has been separated from high-value agarwood because of its resin content. BMW's agarwood products are derived from agarwood outside grades A, B, and C [9]. This leftover wood is purchased from farmers at a price of IDR 5,000 per kilogram. If it is assumed that in one tree it reaches 80 kg, then the farmer only gets IDR 400,000 after being separated from the wood that contains resin. However, farmers also often sell agarwood trees in log form. Agarwood trees are sometimes valued at only IDR 500,000 per tree.

The case that happened to Mr. SDN in Ketangga, East Lombok, is even more tragic. He sold 60 trees for IDR 3,700,000, even though he had invested so much to raise the agarwood tree. If the result is only that big, then he will suffer a big loss when compared to if he grows other crops, such as durian fruit, which can generate millions of rupiah annually from the sale of the fruit.

I used to plant in early 2000. I planted hundreds of trees at a distance of 3 x 3 m. The seeds are from an NGO that guides us in planting. We were registered per group of 20 people. Each person gets 80 agarwood seeds for free, with coconut tree seeds as a shelter. The extension worker said that if there was sapwood, it would be valued at IDR 5 million per kilogram. However, when it was time to cut down, someone came and was offered only IDR 4,000 per kilogram. Finally, I answered rather rudely: "I have been told that the price is high; why did you come to offer a price of Rp. 4,000? I feel like this is a mocking." In the end, I survived; I didn't sell it. But then, instead of getting nothing, someone came and offered to buy it at a price of IDR 5,000 per kilogram. Finally, I sold it for IDR 3,700,000, or as much as 7 quintals from approximately 60 trees. Yes, rather than having a loss. (interview with Mr. SDN)

Mr. SDN, who sells them at a low price, was because the wood he sells did not contain agarwood resin (unsuccess agarwood in Figure 1). Therefore, agarwood collectors or traders buy it as leftover wood which was then used as raw material for BMW. Then it chopped and created by craftsmen and shaped with designs like natural agarwood. This creation requires a lot of manpower, equipment and special skills. Achieving this skill is requires practice or habituation. Therefore, not in all places you can find BMW agarwood craftsmen. Its spots are located at several points in East Lombok and West Lombok. The craftsmen are paid IDR 60,000-65,000 per kilogram .

In Orong, West Lombok, there was even a case where the craftsmen were only paid IDR 25,000 per kilogram by the collectors. These collectors then sell the BMW raw material crafts to other collectors at a selling price of IDR 50,000 per kilogram. He then resell to collectors as well as BMW wholesalers for IDR 65,000 per kilogram. The collector himself gets the agarwood tree by buying it from the people at a cheap price, which is valued at IDR 2,000

per kilogram, but he buys logs that have died because they failed to be inoculated. So one tree is bought at a price between IDR 250,000- 800,000.

I bought 2000 per kilogram in the form of logs, then made crafts by craftsmen, then I bought IDR 25.000 per kilogram, then I sold (to collectors-red) IDR 50.000 (Interview with Mr. MSR)



Fig. 1. Unsuccessful inoculation of agarwood tree

Here, it can be seen that the wages received by craftsmen are different in each place. In East Lombok, the wages of craftsmen are relatively fair, but in West Lombok, the wages for them are particularly cheap. On the other hand, the marketing chain is also longer because there are several collectors who act as intermediaries in the BMW trade.

Judging from their productivity, the average craftsman produces one kilogram in a day of work. However, there are also those who produce only half or even a quarter, due to other activities, such as cooking and other household activities, particularly for wives. In many locations, these craftsmen rely a lot on women or housewives. So, the work as a craftsman becomes an additional job but regular income for every household in those places. With such wage, craftsmen actually get a small wage when compared to the long processing time which take a full day, more than eight hours.

After the raw materials for BMW agarwood are produced, the collectors then sell them to BMW wholesalers. The selling price reaches IDR 500,000 per kilogram. From here BMW collectors get such a large profit on every kilogram. If roughly averaged the profit can reach IDR 425,000 per kilogram. Furthermore, BMW wholesalers process BMW raw materials into finished products. The cost of processing into finished products in a quintal is only around IDR 250,000. This process produces BMW agarwood with prices varying from IDR 2,000,000 to more than IDR 5,000,000. We saw that the profit margins obtained by the parties in the BMW agarwood trading chain are quite unequal. The higher the profit margin, the bigger the benefit obtained, leaving behind farmers who works for planting agarwood, and craftsmen as laborers for producing BMW.

3.2 Power Relations in BMW Trade

It is undeniable that access to resources and arrangements for their allocation are the keys to the successful resource management, including agarwood as non-timber forest product [33].

Therefore, it is important to see how the dynamics of the access of the parties in the BMW commodity value chain are. Access theory from Ribot and Peluso [28] focuses the analysis on who actually gets the benefit of something and through what process that party is able to obtain it. Thus, a series of powers can be interpreted as a package that allows individuals and institutions to benefit from certain resources [29]

Peluso noted several important aspects in using access theory to conduct analysis in natural resource politics. These aspects include mechanisms for obtaining, controlling, and maintaining access which include rights-based mechanisms and structural and relational access mechanisms. The first mechanism includes several types, namely through formal law-based rights mechanisms, customary law, and conventions. In addition, it is also recognized that illegal-based mechanisms, for example through confiscation or theft. Meanwhile, the second mechanism includes technology-based access, capital, markets, labor, knowledge, authority, identity, and social relations [28,29]

In the case of the BMW agarwood trade, there are several important points to be discussed, they are the actors, the interests of the actors, the access mechanism that is carried out, and the powers of the actors.

3.3 Actors and Their Interest

There are various actors who have an interest in the BMW trade as described in the discussion on BMW's marketing flow. The most important thing is to look at the dynamics of the interests of these parties. The interests of the parties are always related to their position in relation to other parties [28]. For this reason, it is important to see how the interests of the parties are related to the interests of other parties in the context of BMW trading. There are several actors involved in the agarwood trade chain, and BMW in particular. These actors include farmers, local collectors, BMW craftsmen, local collectors, large BMW collectors, and BMW wholesalers.

3.3.1 Agarwood Farmer

Farmers have an interest where the agarwood plants that have been planted and maintained for a long time can then be sold at high prices. The reason that arises is that farmers have allocated their land to be planted with agarwood. He has also made various efforts to maximize the expected results. In terms of plant cultivation, agarwood does not require a lot of input compared to other commodities such as tea [34]. Agarwood can also be grown in an agroforestry pattern, for example in combination with vanilla (*Vanilla planifolia*) [35]. However, in terms of costs for inoculation, it requires pretty much money. However, because the expected results are seen as promising, farmers are then interested in cultivating agarwood. It was also caused by information obtained from both government agencies, as well as from nurseries and agarwood entrepreneurs.

In practice, farmers are more likely to be recipients of programs from both the government and enterprise and agents of agarwood inoculation. Mr. MSW's experience in Rensing, East Lombok shows that he has agarwood plants that are more than ten years old. Then came the enterprise who at the same time would inoculate agarwood. An agreement was made which stated that later there would be a distribution of 50% each of the inoculation results. On the way it turned out that the inoculation failed and several trees were died. Eventually a lot of it is cut down and became unitized wood. The inoculation enterprise promised that later the white wood would be purchased at a minimum price of IDR 25,000. However, when the wood was cut and chopped, it was only valued at Rp. 5,000 per kilogram. Hearing that, Mr. NSW got emotional and then he didn't want to sell it. The chopped wood was even then left to pile up into useless trash.

“At that time a minimum of twenty-five thousand per kilogram of ordinary agarwood (white/not inoculated-red), but after we cut a lot, it turned out that we were holding on to it and saying, “We will take it of the price five thousand.’, Oh, it made us hurt, so let it be a garbage.” (interview with Mr. MWN, 2018)

3.3.2 Local Collectors and BMW Craftsmen

Local collectors have a unique position. In the presence of BMW craftsmen, local collectors have a function as intermediaries between large BMW collectors and directly with BMW wholesalers. In front of BMW craftsmen, local collectors have an interest in making BMW raw materials produced by craftsmen of good quality. Therefore, he tried to direct the craftsmen on what kind of model which BMW enterprise wanted, what kind of technique should be mastered, how to work with it, and how fast the work was done. The better and faster on finishing the job, the collectors will get appropriate rewards. Clearly, the interest of collectors is to get the reward from the hard work of the craftsmen. BMW collectors themselves get a reward in the form of IDR 5,000 from each kilogram of BMW crafts produced by the craftsmen. Local collectors use euphemistic language to refer to this reward as “the cost of gasoline”, which is a substitute for gasoline or fuel oil that has been issued by collectors to take BMW craft raw materials from big collectors or wholesalers to be brought to the village where the collectors and craftsmen live, and send the product back to the BMW wholesaler (Interview with Mr. ACN).

BMW craftsmen themselves have an interest in getting a decent wage for the BMW craft they produce. To get it, there is no other way except by getting as many raw materials for BMW crafts as possible to produce. Unfortunately, there are so many BMW craftsmen in one village. This condition creates competition with each craftsman. Limited raw materials are fought over by many craftsmen. Finally, each craftsman only gets a few raw materials. Therefore, the products resulted are few and the wages earned are small and can only be relied on as additional income, not as main income.

Another problem that arises is that the model of handicraft products is always changing, sometimes in one week the model of the craft that must be produced has changed. These conditions make it difficult to speed up the process of producing BMW. In producing handicrafts, special skills are needed which will get better when done continuously with the same model. However, because the models are constantly changing, craftsmen do not have the opportunity to optimize their production.

From this we saw that the relationship between collectors and craftsmen is mutual. However, collectors have a superior position. Nothing wrong if the relationship is more patron-client. One of the characteristics of a patron-client relationship is the inequality in power [36]. Collectors have more power and dominate compared to craftsmen.

3.3.3 Big BMW Collector and BMW Trader

In Lombok there are big BMW collectors and direct BMW traders, however, sometimes both of them have the same role. Here the two will be distinguished because in the field both were exist. BMW collectors have an interest in getting handicraft products from craftsmen of good quality. Thus, he will have a good bargaining position in front of BMW wholesalers. If the quality is not good, BMW traders usually do not want to accept it, or accepted but by lower price, or can also be returned for repair or ask for other products that are in accordance with the request.

BMW wholesalers themselves have two interests. The first is getting cheap raw materials for BMW production and to get a good quality BMW to sell at a high price. For the first interest, the parties who are directly related are agarwood farmers. Meanwhile to get a good

quality of BMW, he needs BMW craftsmen. BMW is just an imitation, however they want to as close as original or natural one. For this reason, BMW is expected to have a shape, color and aroma similar to natural agarwood. In addition, the quality of BMW is also determined by the preferences of BMW consumers. One of the determining factors is the shape of the BMW engraving, each of which consumers have different preferences. Therefore, BMW traders have specifications that change time to time.

3.4 Access Mechanism and Power Relations among Parties

Ribot and Peluso [28,29] see that there are rights-based and relational structural-based mechanisms that are carried out by the parties in achieving, controlling, and maintaining access to resources which then creates a power relationship between the parties. Agarwood farmers receive benefits in the form of income from the sale of agarwood. Mechanisms to achieve benefits are based on rights-based mechanisms for land ownership and agarwood trees. He has both things so that he is also then able to control and maintain access to them. With the ownership of the land and the agarwood trees, farmers hope to be able to obtain, control, and maintain economic resources from the sale of agarwood products. However, the mechanism for access to land and agarwood trees is not enough to provide a strong position in front of other parties.

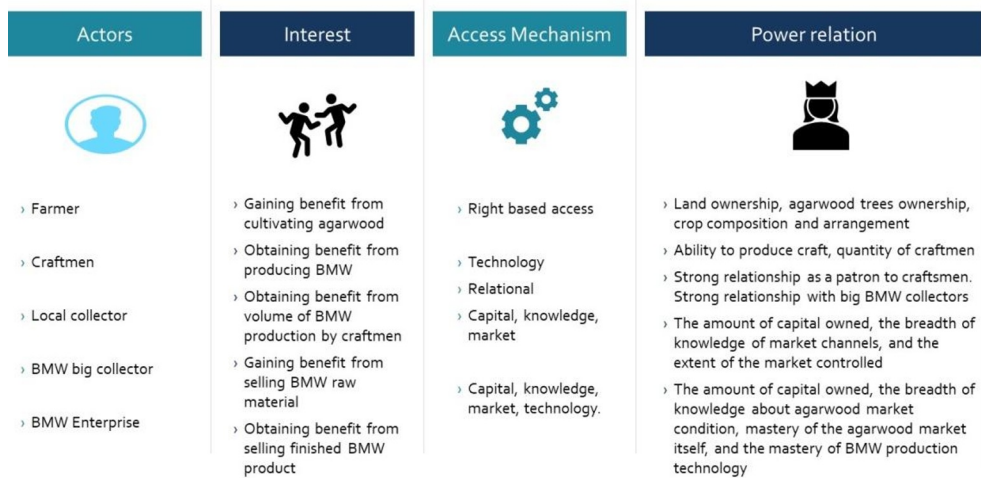


Fig. 2. Interest, access mechanism, and power relations

On the other hand, BMW craftsmen benefit in the form of income by mastering the technology for making BMW crafts. In Foucault's own view, technology is also a form of power. It can play a role in making humans more humane, but on the other hand, technology can also alienate humans themselves [37]. In this context, the position as a worker also makes him have a bargaining position in front of BMW enterprise and collectors. But at the same time, BMW products also alienate the craftsman from what he produces. BMW products produced in the hands of BMW collectors and wholesalers undergo different transformations and have prices beyond the reach of the craftsmen themselves. In Harvey's view [38] the craftsmen are increasingly alienated due to the practice of debt which then limits the freedom of the craftsmen so that they inevitably have to follow the production pattern desired by the big BMW enterprise and collectors. In access theory [28] accounts payable become a means of gaining access by BMW collectors and traders in the form of multiple profits on BMW production produced by craftsmen.

Meanwhile, local collectors who act as intermediaries between craftsmen and large BMW collectors and BMW traders have access mechanisms in the form of knowledge and social relations. With it he is able to provide raw materials from BMW collectors and wholesalers to be distributed to the craftsmen. Without local collectors, and their ability to act as a liaison between the two parties, BMW dealers/BMW wholesalers actually have the opportunity to have direct access to craftsmen. But on the field, they can not do that. This is the advantage of local collectors who take advantage of access mechanisms in the form of social relations. This condition allows his position to be unshakable as the party that bridges the needs and interests between the two parties. Big BMW collectors and BMW enterprise did not have direct access to craftsmen. He had to go through the collector. It is the collectors who will transmit their wishes to the craftsmen by giving instructions and at the same time giving examples regarding the products that need to be made.

Furthermore, BMW enterprise and large BMW collectors use access mechanisms based on knowledge, technology, capital and markets. Mastery over these four things makes BMW enterprise and collectors have strong dominance and have high determination in determining what kind of product should be produced, in what quantity it needs to be produced and at what price to be paid to the upstream market chain.

These two actors in some cases have the same interests in front of farmers, local collectors, and craftsmen. The use of access mechanisms in the form of capital is one of the effective strategies to create dominating and hegemonic power relations over farmers, and especially BMW craftsmen. This power relation model by Haugaard [39] is classified as a form of power that represses, not empowers.

In fact, craftsmen and farmers obtain very little benefit dealing with BMW enterprise and collectors. The conditions created are dependencies that are ongoing and maintained. Farmers have no other choice but to sell their agarwood at low prices to BMW collectors or wholesalers. The oligopsony market condition which is only controlled by a few collectors and wholesalers of BMW has strengthened their control over the farmers and craftsmen. This situation entrapped both farmers and craftsmen in their roles as low-wage workers to produce BMW.

4 Conclusions

BMW's production line moves from separating agarwood which has high resin content into remaining agarwood which has no resin. This material is then produced by craftsmen to become the raw material for BMW. After that, BMW's raw materials are processed to produce BMW's finished products.

High profits are obtained by the parties in the downstream trade chain, namely the collectors, up to the BMW wholesaler who gained the largest portion of the profits. Meanwhile, farmers and craftsmen seem to be just production workers who only receive a very small portion of wages and income.

The power relations of the parties show inequality (Figure 2). Great access and power are enjoyed by wholesalers to local collectors, meanwhile farmers and craftsmen are the parties with the smallest access and power mechanisms so that the benefits they obtained are merely small in the large BMW trade.

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