International Journal of Scientific Research and Management (IJSRM)
||Volume||12||Issue||03||Pages||506-516||2024||
Website: www.ijsrm.net ISSN (e): 2321-3418
DOI: 10.18535/ijsrm/v12i03.ah02

The Role of *Tuo Banda* Local Institutions in Improving Competitiveness and Implementation of *Salibu* Technology in Rice Farming in Tanah Datar District, Indonesia

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Abstract:
Local *Tuo Banda* institutions play an important role in irrigation water management to support the application of *Salibu* technology in rice farming. Data analysis was done quantitatively using the Policy Analysis Matrix (PAM) method. The result showed that *Tuo Banda* as a local instituation in managing irrigation water is very instrumental in ensuring the availability of water for the application of *Salibu* technology in rice farming in Tanah Datar District, Indonesia. The failure of the implementation of *Salibu* rice technology so far in some place is due to the absence of local institutions to ensure the availability of irrigation water for the *Salibu* rice farming. Rice business with *Salibu* techonlogy has competitiveness based on the acquisition of private benefits and social benefits as well as competitive advantage and comparative advantage.

Keywords: Competitiveness, Tuo Banda Local Institution, Policy Analysis Matrix, Salibu Rice Farming**.**

1. Introduction

Rice is a food crop commodity that plays an important role in the Indonesian economy [1–3]. Rice as the staple food of the Indonesian people is very difficult to replace by other staple foods such as corn, tubers, sago and other carbohydrate sources, so the existence of rice is the main priority of the community in meeting the needs of carbohydrate intake [4]. On the other hand, rice farming provides employment for around 20 million rural farming households, so in terms of national food security, its function is very important and strategic [5].

In general, wet-rice farmers in Indonesia use the transplanting system (conventional) in their farming activities [6]. In this conventional system, rice must be sown first before planting in the fields. With various disadvantages, including water-intensive tillage, the use of a lot of labour, and requires a relatively long and inefficient harvest time. Currently, the cultivation of paddy rice is required to use efficient resources such as water resources, labour, input costs (seeds, fertilisers and pesticides) and a short harvest time (harvest index of more than 300%).

Developments show that there is a more efficient and profitable rice farming technology, namely *Salibu* rice technology [7–10]. The reality so far is that paddy rice farming using transplanting technology carries out activities starting from seeding, tillage, planting, weeding, fertilising, controlling pests and plant diseases, and harvesting. While rice paddy farming with *Salibu* technology farmers no longer need to do nursery and planting activities. With *Salibu* technology, it is possible to grow from crop residue rice that is pruned and no longer requires labour for the tillage, nursery, and planting phases so that it is considered to save costs that must be incurred by farmers [3,11].

Salibu technology in rice farming can increase the intensity of harvest 3 times a year (IP 300%) compared to conventional planting less than 3 times a year. The application of *Salibu* technology in rice farming will increase production and productivity thus strengthening national food sovereignty [9,12,13]. This technology allows the rice commodity produced will have competitiveness, namely the existence of a competitive advantage shown by the maximum management of rice farming. As well as the emergence of comparative advantages indicated by the low use of domestic resource [14].

The Tanah Datar District Government is focusing on developing rice cultivation with *Salibu* technology. Almost 60 per cent of wetland rice farmers have implemented the *Salibu* rice technology and it is expected to increase in the following year. This is supported by the high attention of the district government through the agriculture office to programme *Salibu* rice farming as a mainstay in rice farming [13,15]. The local institution of *Tuo Banda* is expected to play a significant role in ensuring the availability of water in implementing *Salibu* rice farming technology. On the other hand, the intense government programmes in Tanah Datar Datar Regency to support the implementation of *Salibu* rice technology such as superior seed assistance, fertiliser assistance, pest and disease control and the implementation of field schools (SL). This policy was responded by farmers and communities to switch from conventional rice farming to *Salibu* rice farming technology [12].

The expectations of farmers and the condition of rice farming development of *Salibu* technology to ensure its sustainability are faced with research problems that can be formulated as follows: (1) What is the role of local *Tuo Banda* institutions in supporting the application of *Salibu* rice technology in Tanah Datar District; (2) What is the level of competitiveness of *Salibu* rice commodity technology developed; and (3) What is the impact of government polocies on inputs and outputs in ensuring the application of *Salibu* rice technology in Tanah Datar District.

This research is intended to determine the role of local *Tuo Banda* institutions to improve competitiveness and the impact of government policies in ensuring the sustainability of the application of *Salibu* rice technology in Tanah Datar District. This research has specific objectives namely: (1). Knowing the role of *Tuo Banda* institutions in supporting the application of *Salibu* rice technology; (2). Knowing the level of competitiveness of the rice commodity of *Salibu* technology developed in Tanah Datar District; (3) Analysing the impact of government policies on inputs and outputs in ensuring the sustainability of the application of *Salibu* rice technology.

2. Method

This research was conducted in Tanah Datar District which is the largest area that applies rice farming with *Salibu* technology in West Sumatra Province. This research was conducted for two months, September and October 2023.

In line with the objectives of this research, which emphasise the analysis of competitiveness and the impact of government policies on the sustainability of the implementation of *Salibu* rice, the appropriate research method is a combination of a quantitative and qualitative approach. So that this research method is expressed as a dominant-less dominant approach, namely the quantitative approach has a dominant position and the qualitative approach has a less-dominant position. – it is still unclear to me what exactly has been done – how was information gathered?

Data analysis method was done descriptively by narrating the role of local institutions of *Tuo Banda* in supporting the application of *Salibu* rice technology and the problems it faces. Quantitative analysis was used to analyse the competitiveness and impact of government policies such as input policies and output policies on the competitiveness of *Salibu* rice by using Policy Analysis Matrix (PAM) or Policy Matrix Analysis used to analyse the effect of government intervention and its impact on the commodity system [16,17]. The commodity system that can be effected includes four activities, namely the level of farm production, delivery from farm to processing, processing and marketing [18].

The data processing method used to analyse competitiveness including competitive advantage, comparative advantage and the impact of government policies on *Salibu* rice farming is the Policy Analysis Matrix/PAM method [19,20].

Table 1. Policy Analysis Matrix (PAM)

Information	Reception	Cost		Advantages
		Input Tradable	Input Non Tradable	
Private Pricing	A	B	C	D
Social Pricing	E	F	G	H

Policy impacts	I	J	K	L

Source: [18]

Information:

1. Private Advantage (D) = A-B-C
2. Social Advantage (H)= E-F-G
3. Transfer Output (1)= A-E
4. Transfer Input (J)= B-F
5. Transfer Factor (K)= C-G
6. Net Transfer (L) = I-J-K
7. Private Cost Ratio: PCR=C/(A-B)
8. Domestic Resource Cost Ratio; DRCR= G/(E-F)
9. Nominal Output Protection Coefficient: NPCO= A/E
10. Nominal Input Protection Coefficient: NPCI= B/F
11. Effective Protection Coefficient: EPC= (A-B)/(E-F)
12. Profit Coefficient: PC= D/H
13. Producer Subsidy Ratio: SRP= L/E

2.1 Competitiveness

a. Competitive Advantage

If the value of PCR<1 means that teh production system of *Salibu* rice farming is more competitive and able to finance its domestic factors at private prices and its ability will increase. And if the PCR≥1 *Salibu* rice farming system does not have a competitive advantage. The formula for calculating the Private Cost Rasio is:

PCR = C / (A – B)

Information:

PCR = Private Profit Ratio
C = Private Domestic Factor Input Cost
A = Private Reception
B = Private Tradable Input Costs

b. Comparative Advantage

If DRCR<1, then the *Salibu* rice farming system has a comparative advantage. And vice versa if DRCR ≥ 1 then the commodity system does not have a comparative advantage. The formula for calculating the value of the Domestic Resource Cost Ratio is:

DRCR=G/(E-F)

Information:

DRCR = Social Profit Ratio
G = Domestic Social Factor Input Cost
E = Social Acceptance
F = Social Tradable Input Costs

2.2 Impact of Government Policy

a. Impact of Government Policy on Output

Based on the PAM analysis, if NPCO>1, the domestic price is higher than the import (or export) price and means that the *Salibu* rice farming system receives protection. If NPCO < 1, the private price is smaller than the world price, in other words, the output producer provides a transfer to the government, meaning that the private price is protected. The NPCO calculation formula is as follows:

NPCO = A / E

Information:

NPCO = Nominal Output Protection Ratio
A = Private Reception
E = Social Acceptance

b. Impact of Government Policies on Inputs

The ratio to measure tradable input transfers is the Nominal Protection Coefficient on Input (NPCI). If the NPCI ≥ 1, it means that domestic input costs are more expensive than input costs at the world price level, in other words, there is no policy that is protective of input, there no subsidy policy on tradable inputs. If NPCI<1, it means that the domestic price is lower than the world price, i.e. the policy is protective of inputs nad there is a subsidy policy on tradable inputs.

NPCI = B / F
Information:
NPCI = Nominal Input Protection Ratio
B = Input Tradable Privat
F = Input Tradable Social

c. **Impact of Government Policy on Input-Output**

The EPC value illustrates the direction of government policy that effectively protects or inhibits domestic production. EPC value > 1 means that the policy is protective, the greater the EPC value, the higher the government protection of domestic commodities. And if the EPC value ≤ 1 means that policy is not protective, there is no government protection of the domestic commodity.

EPC = (A – B) / (E – F)
Information:
EPC = Effective Coefficient of Protection
A = Private Reception
B = Private Tradable Input Costs
E = Social Acceptance
F = Social Tradable Input Costs

The Provitability Coefficient (PC) is the ratio between private and social benefits. PC measures the impact of all transfers on private profits. If PC > 1, it indicates that overall government policy incentivises producers. Conversely, if PC ≤ 1, it means that overall government policy does not incentivise producers.

PC = D / H
Information:
PC = Profit Coefficient
D = Private Advantage
H = Social Advantage

The Subsidy Ratio to Producers (SRP) is the ratio between net transfers and the value of output at the world price level. A value of SRP < 0 means that current government policies cause producers to incur production costs greater than the balanced cost production. And if the value of SRP ≥ 0 means that the government policy in force so far does not cause producers to to incur production costs greater than the offset cost of production.

SRP = L / E
Information:
SRP = Producer Subsidy Ratio
L = Advantages of the Divergence Effect
E = Social Acceptance

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3. Result and Discussion

3.1 Technical Culture of Salibu Rice Practised by Farmers in Tanah Datar District

a. Land Preparation

In preparing the land to carry out the process of *Salibu* rice technology, the availability of water must be very concerned, because the success in using *Salibu* rice technology is highly dependent on the availability of water. There are several water sources in the research area for cultivation, namely Nagari Tabek has many springs that are used for *Salibu* rice farming technology, namely Pincuran Tuo Spring, Talago, Cang Lado, Sumaghiah Badina, Sughau Baghu, Batu Ampa, Putan, Simpang Rawang, Kolam, Sumua, Lugha, Aia Putiah, Lipai, Sago, Singkuang, Tapi, Jambu, Baghua River, Palo Balai, Masajik, Talao, Sumaghia Jambu, Kuniak And Kusai, Tabik River Springs, Saghojo River, Galam, Tumbayun, Bigau and Tabek Liek.

After the availability of water is declared adequate, namely with a height of 3-5 cm on the surface of the land, then farmers clean the straw from the remaining harvest to be placed first on the edge of the rice field and if there are weeds, they are cleaned mechanically using a hoe and sickle. The next activity is to conduct waterlogging for 5-7 days. Furthermore, after the water is stagnant, the activity carried out is to release water again until the soil becomes moist (water *macak-macak*).

In general, farmers who apply *Salibu* technology in land clearing follow the recommendations of the Agriculture Office of Tanah Datar District. However, there is a difference in the waterlogging activity, which is based on the Agriculture Office of Tanah Datar Regency, the waterlogging is 1-2 days while *Salibu* farmers apply waterlogging for 3-5 days, aiming to make the soil in the paddy field softer.

b.Cutting of Harvest Leftover Stumps

The activities of land cultivation, nursery, planting in *Salibu* rice cultivation, are only carried out in the previous planting period (transplanting), these three activities will be replaced by the cutting of harvest stumps. After inundated with water so that the rice field becomes moist and the stumps of the remaining harvest have sprung new shoots irregularly, the stump cutting activities are immediately carried out as high as 2-5 cm from the ground surface. The cutting tool used is a cutting machine with a plot knife. After cutting the harvest stubble, another waterlogging is carried out at a height of 1-4 cm or not up to the height of the cut embankment to avoid rotting of the cut rice stumps.

c. Weeding and Replanting

Weeding is carried out twice, the first is when cutting the stumps of the remaining harvest, which is to clean the land from weeds and the remaining straw from cutting rice stumps. Weeding is done by using a sickle to clean weeds, while for the remaining harvest straw is not thrown away but buried into the ground using the foot. In addition to the first weeding activity, replanting is also carried out simultaneously by utilising the existing *Salibu* shoots, by breaking the shoots whose roots grow a lot, then broken into 2-3 tillers, then inserted into the stump of the plant that does not grow well.

d.Fertilisation

Fertilisation in *Salibu* rice technology is done twice, the first fertilisation is done 10-15 days after cutting the stump, this is done to stimulate the growth of new shoots on rice stumps that have been cut. The types of fertiliser used were urea and phonska with details of urea 453 kg/ha and phonska 455 kg/ha. Fertiliser application was done by sowing in water conditions. The first fertiliser was given as much as 40% of the dose when the *Salibu* rice plants were between 15-20 HSP (days after cutting) and the second fertiliser was given as much as 60% of the dose when the plants were 30-35 HSP.

e. Plant Pest and Disease Control

In the cultivation of *Salibu* rice in Nagari Tabek, pest and disease control is the same as rice plants in general. Pests that attack rice in the study area are rat pests. Control is done by giving rat poison (petrocum) to the rat hole. Other pests that attack rice in the study area are *walang sangit* and stem borer (scientific name). For control, farmers give pesticides such as ally plus, metachlor, bio conversion, prima jos, beauveria, garmaquat and saturn D. In general, rice farming in the study area does not have plant disease attacks.

f.Harvest and Post-Harvest

Salibu rice harvesting is done when the grain colour turns yellow (90%) and the stem is still green, usually seen after 90 HSP. For harvesting in Nagari Tabek, farmers usually use sickle tools and traditional tools (barges) whose function is to separate the rice grains from the rice stems. After the rice is cut using a sickle, the rice grains are separated by hitting the rice stems into the barge tool until all the grains enter the barge tool. For post-harvest activities, farmers use a rice fan machine or threaser which functions to separate good rice grains from bad or empty rice grains and clean the remaining leaves that are still carried so that the rice to be sold later is good rice.

3.2 The Role of Tuo Banda in Ensuring Water Availability for Salibu Rice Farming

Salibu rice technology is suitable for paddy fields with guaranteed irrigation water. Many areas that apply the *Salibu* technology in rice farming are faced with failure because there is no guarantee of irrigation water availability for the *Salibu* rice farming. In the research area with a total area of 192 hectares of rice fields that applied *Salibu* rice, in general it was successful and even up to 7 harvests. The guarantee of this success depends on the guarantee of water availability in addition to technical culture in accordance with the recommendations.

Irrigation of rice paddies in the research area is managed by Tuo Banda, including: water supply; water distribution; maintenance of irrigation infrastructure and handling conflicts and mobilising resources. The task of Tuo Banda is to carry out the duties and functions of the Water User Farmers Association (P3A). Tuo Banda is the nomenclature of local irrigation management and plays a role in providing water for rice farming with *Salibu* technology.

Institutions, according to Norman Cernea [21], are a complex of norms and patterns of behaviour that are oriented towards certain socially valuable goals collectively. That is, local institutions as an alternative development (local institution development), in the local community. This includes the provision of irrigation water for the application of *Salibu* rice technology. Local institutions such as *Tuo Banda* play a very important role in the application of *Salibu* rice technology. *Salibu* rice is a rice plant that grows again after the remaining harvest stens are cut down, shoots will emerge from the book in the soil [22]. This shoot will send out new roots so that nutrient supply is no longer dependent on the old stem. These shoots can divide or sprout again like regular transpalnted rice. This is what makes the growth and production the same or higher than the first plant or the parent plant [23].

Irrigation is an effort to provide water or drain water from available water sources to a land to meet the water needs for plant growth. Irrigation has a very important role in increasing and stabilising agricultural production, namely facilitating tillage, regulating soil temperature and climate, cleaning the soil from too high salt or acid levels, cleaning impurities from sanitation, and flooding the soil to eradicate pests/diseases in plants [24].

Tuo Banda has duties and functions, namely; a) operating building doors, retrieval and flushing buildings in his working area; b) carrying out maintenance, repair and construction of irrigation networks under his authority; c) dividing irrigation water to each block in the irrigation area; d) guiding and supervising the implementation of repair, maintenance and construction of irrigation networks. Tuo Banda has an important role in ensuring the availability of irrigation water for *Salibu* rice farming technology. So that the successfull implementation of *Salibu* rice technology in the research area because Tuo Banda performs its duties and functions in managing irrigation water at the level of farmers' rice plots.

3.3 Competitiveness of Salibu Rice Farming

To measure the competitiveness of a commodity, it can be done with the approach of comparative advantage and competitive advantage. The method used is Policy Analysis Matrix (PAM). The results of the PAM analysis of *Salibu* rice farming in the research area can be seen in (table 2) below.

Table 2. Policy Analysis Matrix (PAM) for *Salibu* Rice Farming

	Acceptance Output (*Revenue*)	**Input**		**Advantages**
		Input *Tradable*	**Domestic factors**	
Private	72.965.915	4.117.917	37.178.766	31.669.232
Social	68.761.593	8.264.873	33.797.189	26.699.531
Impact of Divergence	4.204.322	-4.146.956	3.381.577	4.969.701

For private profitability, the selling price is based on the selling price received by farmer. The selling price received by farmers is IDR 6,190/kg. For social profitability, the selling price is based on the shadow price of IDR 5,833.23/kg. Overall, private and social analyses show that rice farming with *Salibu* technology is profitable. This is seen from the private revenue and social revenue obtained is positive.

The private revenue of *Salibu* rice farming is positive at IDR 72,965,915 with a private profit of IDR 31,669,232 after deducting tradable input costs of IDR 4,117,917 and domestic factor costs of IDR 37,178,766. This means that *Salibu* rice farming is highly competitive at current price and technology levels. The social revenue of *Salibu* rice farming also has a positive value of IDR 68,761,593 with a social profit of IDR 26,699,531 after deducting tradable input costs of Rp. 8,264,873 and domestic factor costs at social prices of IDR 33,797,189. This means that *Salibu* rice farming has good efficiency at the current price level and technology.

The impact of revenue divergence is IDR 4,204,322 and the impact of profit divergence is IDR 4,969,701. This is due to the private price of paddy is higher than the shadow price or social price. The Private price of paddy is IDR 6,190/kg while the social price is IDR 5,833.23/kg, so the revenue at the private price is higher than the revenue at the social price and the private profit obtained is also higher than the social profit. The divergence impact of tradable inputs is negative at IDR -4,146,956 and the divergence impact of domestic factors is positive at IDR 3,381,577.

Salibu rice farming has private profits and social benefits that are both greater than zero. This means that in the presence or absence of government intervention *Salibu* rice farming is financially and economically profitable or has good competitiveness and efficiency at the farm level.

a. Competitive Advantage

The results of the Privat Profit (PP) and Privat Cost ratio (PCR) of *Salibu* rice in Tanah Datar District can be seen in (table 3) below.

Table 3. Private Profit and Private Cost Ratio of *Salibu* rice in Tanah District

Numb	Indicators	Value
1.	Private profit (PP)	31.669.232
2.	Private Cost Ratio (PCR)	0,54

Based on the results of the analysis, it can be seen that *Salibu* rice farming in Nagari Tabek is privately profitable and feasible to continue. This is indicated by the private profit (PP) > 0 then financially the existence of government policy is profitable to be cultivated. This means that the profit received by *Salibu* farmers in the presence of government policies at the time of the study was IDR 31,669,232. Farmers income based on private value is greater then the cost expenditure for tradable inputs and domestic factor input costs.

Competitive advantage is seen from the value of the Private Cost Ratio (PCR), which is the ratio between domestic factor costs and value added output from the cost of inputs traded at the actual price level. An activity will be privately efficient if the PCR value obtained is smaller than one (<1), which means that to increase the value added of output by one unit requires additional domestic factor costs smaller than one unit, which is 0.54, which means taht *Salibu* rice farming in the research location is financially efficient or has competitiveness in the presence of government policies.

b. Comparative advantage

The results of the Domestic Resource Cost Ratio (DRC) and Social Profit (SP) of *Salibu* rice farming in Nagari Tabek can be seen in the following (table 4):

Table 4. Domestic Resource Cost (DRC) and Social Profit (SP)

Numb	Indicators	Value
1.	Social Advantage (SP)	26.699.531
2.	Domestic Resource Cost Ratio (DRC)	0,56

The social profit value (SP) of *Salibu* rice farming in Nagari Tabek is IDR 26,699,531. If the social profit (SP) > 0 then economically, ie perfectly competitive market conditions, farming activities can be continued because it is profitable or has a comparative advantage. If SP < 0 then the business activity is not economically profitable. The SP value in this study is positive, meaning that *Salibu* rice farming in Nagari Tabek can generate profits in conditions wthout government intervention.

The value of domestic resource Cost Ratio (DRC) on *Salibu* rice farming in Nagari Tabek is 0.56. The value of 0<DRC<1 indicates taht domestic resource cost at social price are smaller than at private price, which means that *Salibu* rice farming has a comparative advantage. The value of DRC<1 indicates that the commodity has competitiveness, which means that *Salibu* rice farming can help farmers' economic activities. The DRC indicator is obtained by dividing the total value of domestic factors to the difference between revenue and total tradable inputs.

3.4 Impact of Government Policy

a. Impact of Government Policy on Output

The indicator of the impact of government policy on output can be seen by using the value of TO (Transfer Output) and NPCO (Nominal Protection Coefficient Output).

Table 5. Transfer Output (TO) and Nominal Protection Coefficient Output (NPCO)

Numb	Indicator	Value
1.	Transfer Output (TO)	4.204.322
2.	Nominal Output Protection Coefficient (NPCO)	1,06

The TO value of Rp. 4,204,322 means that the private price of rice is higher than the social price. This condition shows that the existence of government intervention on the output of the farm is more profitable for farmers because farmers sell at price higher than the actual price or social price or output protection by the government of Rp 4,204,322 per Ha in *Salibu* rice farming. Farmers themselves feel that it is better to have government interventions such as fertiliser subsidies that can reduce the cost of purchasing fertiliser, considering the price of inorganic fertiliser which is relatively expensive and often experiences scarcity.

The NPCO value indicates that there is a government policy that affects the sixe of the TO. An NPCO value greater than one (NPCO>1) indicates a government policy that protects the selling price so that the private price is higher that the social price. The NPCO value obtained from the calculation is 1.06. This means that government policies on rice farming output in the form of flexibility in the purchase price of farmers' grain and rice are able to make the price of rice in *Salibu* rice farming 6% higher than the social price.

b. Impact of Government Policies on Inputs

The impact of government policy on tradable inputs is explained by the value of TI and Nominal Protection Coefficient Input (NPCI). The impact of government policy on domestic inputs is explained using Transfer Factor (TF).

Table 6. Value of TI and Nominal Protection Coefficient Input (NPCI) using Transfer factor (TF)

Numb	Indicator	Value
1.	Transfer Input (TI)	-4.146.956,1
2.	Nominal Input Protection Coefficient (NPCI)	0,50
3.	Transfer Factor (TF)	3.381.577,0

The value of TI is IDR -4,146,956.1. Input transfer from *Salibu* rice farming in Nagari Tabek has a negative value. This shows that in *Salibu* rice farming in Nagari Tabek, the price of tradable inputs spent at private prices is lower at IDR 4,117,917 than the price of tradable inputs at social prices which is IDR 8,264,873 so that farmers who do *Salibu* rice farming pay less input than they should due to government policies. This is because tradable inputs in the form of inorganic fertilisers such as NPK Phonska and Urea used in farming are subsidised by the government.

The NPCI value in this study is 0.50. An NPCI value of <1 indicates that there is protection for input producers in the form of subsidies. The nominal Input Protection Coefficient is the difference between the cost of tradable inputs calculated based on private prices and the cost of tradable inputs calculated at shadow (social) prices. The NPCI value of *Salibu* rice farming is less than one (<1) indicating that there are government policies that are protective of tradable inputs.

The TF value in this study is IDR 3,381,577.0. The TF value is positive, which means there is no subsidy on non tradable inputs. One of the inputs used in farm production is domestic factor inputs where the price set is the actual price or the price that occurs in the domestic market. The Price of domestic/non tradable inputs at the private price level is higher than the social price level. One of the reasons for factor transfer is due to the low costs at the social price level for labour and land rent paid by farmers.

c. Impact of Government Policy on Input-Output

The impact of input-output policy can be explained through the analysis of Effective Protection Coefficient (EPC), Net Transfer (TB), Profit Coefficient (PC) and Subsidy Ratio for Producer (RSP). From the research results, the value of each indicator is described in (table 7) below.

Table 7. Effective Protection Coefficient (EPC), Net Transfer (TB), Profit Coefficient (PC) and Subsidy Ratio for Producers (RSP)

Numb	Indicator	Value
1.	Effective Coefficient of Protection (EPC)	1,14
2.	Net Transfer (TB)	4.969.701
3.	Profit Coefficient (PC)	1,19
4.	Producer Subsidy Ratio (SRP)	0,07

The value of EPC is 1.14, which means that EPC > 1. The value of EPC in the research location is greater than one, indicating that government policy towards input-output is effective. The EPC value illustrates the direction of government that effectively protect or inhibit domestic production. The value of EPC>1 illustrates that government policy is protective, causing the value added received by farmers to be 11.4% higher than without government policy.

The value of TB in this study is IDR 4,969,701. The value of TB > 0 indicates that there is an additional producer surplus on the analysed output. This means that the existence of government policies on farm inputs and outputs can increase the benefits received by farmers by IDR 4,969,701.

The value of PC in this study is 1.19 PC> 1. This value indicates that government policies make the benefits received by producers greater, meaning that overall government policies provide incentives to producers or *Salibu* farmers in Nagari Tabek. The value of PC > 1 shows that government policies on inputs and outputs in *Salibu* rice farming increase revenue by 11.9% so that *Salibu* rice farming gets higher profits than farmers should receive.

The value ratio for producers is the ratio used to measure the impact of transfers. RSP is obtained from the comparison between net transfer and revenue based on shadow price. Based table 16, the value of RSP is 0.07. The positive RSP value indicates that the goverment policy that applies in the research location does not cause producers to incur productions costs greater than the actual cost of producing *Salibu* rice farming.

4. Conclusion

1. *Salibu* rice farming activities consist of land preparation, flooding of paddy fields, re-cutting of rice stubble, replanting or insertion, weeding, fertilisation, pest and disease control, harvesting and post-harvesting. The local institution of Tuo Banda plays an important role in ensuring the availability of water for *Salibu* rice farming. Tuo Banda functions in the provision of water, and the distribution of water at the farm level in sufficient quantities and at the right time.
2. The implementation of rice farming with *Salibu* technology by farmers in Tanah Datar District is both financially and economically profitable and feasible to continue. *Salibu* rice farming has both competitive and comparative advantages. This is shown by the private profit (PP) and social profit with a positive value of IDR31,669,232 and social profit of IDR 26,081,106. The PCR and DRC values obtained from *Salibu* rice farming are 0.54 and 0.56. The value of PCR and DRC is small than one, indicating that *Salibu* rice farming has a competitive advantage and comparative advantage that is quite high.

3. Rice farming with *Salibu* technology in Tanah Datar District has a competitive advantage with a PCR value small than one (PCR<1). Likewise, the comparative advantage where the DRCR value is obtained is small than one (DRCR < 1). This shows that rice farming with *Salibu* technology in Tanah Datar district is efficient to run.
4. The impact of government policy on the output of *Salibu* rice farming in Nagari Tabek causes the private price to be higher than the social price. Government policy towards this input is protective in nature which will increase profits for farmers because they get incentives. This can be seen in the input transfer value which is negative at IDR -4,021,480.6. The impact of government policy on input-output causes the addition of producer surplus to the output and runs effectively. This can be seen by the net transfer value > 0 which is IDR 5,588,126 which means that government policies on inputs and outputs of rice farming with *Salibu* technology are able to increase profits.

5. Other recommendations

Based on the results of the study, it is known that *Salibu* rice farming in Tanah Datar Regency has competitiveness in the form of both competitive and comparative advantages so that farmers are expected to continue *Salibu* rice farming. There are several suggestions in the application of *Salibu* rice technology, namely: 1) The Tanah Datar District Government should ensure that the local institution Tuo Banda can carry out its duties and functions to ensure the availability of water for *Salibu* rice farming; 2) The government should ensure subsidies on agricultural inputs such as organic fertiliser and pesticides to ensure their availability in the market (not scarce). 3). Other regions should also switch to implementing *Salibu* rice farming from conventional farming (transplanting), because it is profitable and efficient. 4). The government is expected to continue to guarantee high grain prices and *Salibu* rice farming continues.

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