

Policy Brief

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Policy on Custom Hiring of Agricultural Machinery in Indonesia

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Background

The need to feed an increasing population highlights food production as one of the top priorities for agricultural development in Indonesia. Indonesian population in 2013 reached 259 million. However, from 2003 to 2013, the number of farm family decreased about 5 million, and the number of agricultural machinery increased very slowly with utilization under 35% of its optimum capacity. Given this scenario, agricultural machinery is playing a strategic role in achieving sustainable food security.

To promote agricultural mechanization, the Ministry of Agriculture formulated a strategy entitled “Custom Hiring for Rental Services of Agricultural Machinery (CHRSAM)” in 1998 and issued general guidelines to facilitate its implementation. According to this scheme, farmers do not need to own agricultural machinery, but they can rent from CHRSAM according to their agricultural production activities, and CHRSAM can be managed by farmers' group or individual farmers.

CHRSAM is a rural economic institution engaged in services to optimize agricultural machinery utilization and hence increasing profit. This policy is very important due to: (i) the importance of agricultural machinery for food production (ii) reduction of agricultural labor due to shifting to industry and other sectors, (iii) ownership of small size farmland (0.3-0.9 ha/farmer household), (iv) lack of education, skills and capital of the farmers, (v) inefficient utilization of agricultural machinery owned by individual farmers, and (vi) agricultural modernization drive.

In the early stage of development, CHRSAM was managed by farmers' group and the government was in charge of providing the equipment. Besides, the government also provided several financial schemes including financial guarantees to purchase machines. CHRSAM had developed slowly and with poor performances. Most CHRSAM institutions were categorized as “beginner” and only a few had reached the “professional” category. In order to take advantage of the full potential of this strategy, the Ministry of Agriculture has improved the existing strategies and policies related to CHRSAM.

CHRSAM Performances and Development Constraints

One of the major constraints to CHRSAM development is the overall management of the equipment. Agricultural machines owned by CHRSAM, especially in farmers group, are mostly provided by the government. However, the limited capacity of farmers' groups, operators and

technicians in terms of selecting appropriate machinery, and the state of farm infrastructure such as availability of irrigation and drainage facilities and farm road have resulted in provision of equipment that does not match local conditions,

Moreover, budget limitations constrain training and supervision activities. Although the number of CHRSAM institutions increases every year (please refer to Table 2), most of CHRSAM belong to the “Beginner Category” and only a few of them belong to the “Professional Category” (Table 3).

In addition, CHRSAM does not fully capitalize on agricultural machinery's working capacity. For example, working capacity of a hand tractor is only 8-15 ha/cropping season, and most of the tractors are only used in the farmer groups' area. If the tractors could be mobilized to other locations with different planting time, the working capacity could be increased to 25 ha/planting season.

A study performed by the Technical Team of Indonesian National Committee for Agricultural Mechanization Development in 2014 on the performances of agricultural machinery grant, identified several causes for the poor performance of CHRSAM. They are: (a) limited number of skilled operators and technicians of agricultural machinery; (b) lack of knowledge and skills by CHRSAM managers; (c) unsuitability of agricultural machinery to local conditions and farmers' need; (d) lack of supervision from extension workers due to limited skill and budget; (e) limited availability of fuel and spare parts; (f) lack of local farm machinery workshops; (g) high operational cost of the farm machinery.

The same study also listed the following major constraints of CHRSAM development: (a) limited capability of extension workers, managers and operators, (b) poor infrastructure, especially workshops, farm roads, and irrigation facilities, (c) lack of land consolidation for efficient operation and mobilization of agricultural machinery, (d) limited budget and facilities for training and supervision, (e) lack of access to information on agricultural machinery, capital and spare parts, (f) poor of information management system of agricultural machinery.

Policy Formulation and Efforts

In light of the constraints and factors that result in poor performance of agricultural machinery grant, the government has formulated policies that include: (a) increasing extension organization capacity in the aspect of agricultural mechanization development by improving infrastructure, budget and capability of extension workers, (b) providing local training programs for operators and technicians as well as for CHRSAM managers; (c) encouraging self-finance for CHRSAM through private sector and farmers' participation and empowerment based on the local needs and conditions; (d) increasing ownership of agricultural machinery by farmers through various credit schemes, including down payment subsidy and purchasing guarantee; (e) improving the existing infrastructure, and developing new infrastructure and facilitating the availability of fuel and spare parts; (f) actively promoting and introducing new agricultural machinery and developing pilot models of mechanization based agricultural development followed by intensive supervision; (g) developing appropriate information management system for agricultural machinery, integrated with the planting calendar as a guidance for the development plan and optimization of agricultural machinery. In addition, the government acts as regulator and facilitator in the selection and procurement of agricultural machinery.

Table 1. The Number of Main Agricultural Machinery for Rice Production

NO	PROVINCE	2 WD TRACTOR	4 WD TRACTOR		RICE TRANSPLANTER	COMBINE HARVESTER		POWER THRESHER	DRYER	SMALL S RMU (<2
			<45 hp	(92-110 hp)		(60-75 hp)	< 13 hp			
1	ACEH	4.394	213	2	16	1	16	2.106	9	
2	NORTH SUMATERA	5.534	104	1	26	31	2	137	-	
3	WEST SUMATERA	8.875	20		15	-	7	144	3	
4	RIAU	1.482	12		31	-		29	-	
5	KEPULAUAN RIAU	-	-					-	-	
6	JAMBI	1.380	10	1	15	3		658	7	
7	SOUTH SUMATERA	2.697	-	6	13	6	12	3.950	224	
8	BANGKA BELITUNG	-	6		1	-		346	14	
9	BENGKULU	4.748	-		9	-		650	5	
10	LAMPUNG	4.148	29	9	20	38	17	1.750	6	
11	JAKARTA	38	-					-	-	
12	WEST JAVA	24.243	450	20	57	25	8	2.534	397	1
13	BANTEN	2.574	1		14	11		83	11	
14	CENTRAL JAVA	39.588	-	113	105	56	20	3.966	56	1
15	DIYOGYAKARTA	1.545	5	8	17	-	4	712	7	
16	EAST JAVA	39.083	1.470	118	92	121	203	2.339	101	
17	BALI	692	-		27	6	8	204	4	
18	WEST NUSA TENGGARA	4.132	28		5	25	12	836	5	
19	EAST NUSA TENGGARA	3.399	163		14	-	10	2.096	92	
20	WEST KALIMANTAN	2.512	22		18	11	4	510	13	
21	CENTRAL KALIMANTAN	2.190	12		6	-		10	1	
22	SOUTH KALIMANTAN	3.319	-		30	-		1.049	56	
23	EAST KALIMANTAN	5.356	37		8	-		1.090	-	
24	NORTH SULAWESI	1.560	72		4	-		1.060	17	
25	GORONTALO	1.209	75	8	1	-		337	3	
26	CENTRAL SULAWESI	5.235	-		12	6	11	776	1	
27	SOUTH SULAWESI	16.782	248	10	34	42	15	686	1.841	
28	WEST SULAWESI	935	4		12	-		404	12	
29	SOUTHEAST SULAWESI	4.243	-		1	10	9	-	-	
30	MALUKU	128	-		5	-		-	-	
31	NORTH MALUKU	182	-		8	-	2	43	7	
32	PAPUA	515	11		9	-	2	-	-	
33	WEST PAPUA	187	-		11	-		12	1	
	TOTAL	192.905	2.992	296	636	392	362	28.517	2.893	8

Table 2. The Number of Custom Hiring for Rental Services of Agricultural Machinery: CHRSM in Indonesia, 2006-2012

Year	Custom Hiring of Agric. Mach. (CHRSM) class			Total
	Beginner	Improved	Professional	
2006	7,390	141	39	7,570
2007	7,543	409	65	8,017
2008	8,571	851	100	9,522
2009	8,145	1,783	318	11,103
2010	8,887	2,250	219	11,356
2011	8,801	2,693	453	11,947
2012	9,485	2,136	423	12,044

Table 3. The Number of Custom Hiring for Rental Services of Agricultural Machinery: CHRSM in Main Rice Production Areas of Indonesia in 2012

Province	IRSAM class			Total
	Beginner	Improved	Professional	
Aceh	165	60	3	228
Su mata ra U ta ra	561	57	7	625
Su mata ra Ba ra t	343	26	8	377
Su mata ra Se la ta n	553	198	21	772
La mp un g	574	73	3	650
Ja wa Ti mur	461	167	10	638
Ja wa Te ng ah	1,816	176	64	2,056
Ja wa Ba ra t	325	185	48	558
Ba n te n	247	9	5	261
Ka li ma n ta n Se la ta n	574	95	56	725
Su la we si Te ng ah	225	95	8	328
Nu sa Te ng ga ra Ba ra t	151	88	9	248
Nu sa Te ng ga ra Ti mur	216	31	34	281
Total	6,211	2,047	276	8,534

Table 4. Performances of Government Agricultural Machinery for Each Category in South Sumatera, East Jawa, South Kalimantan, South Sulawesi and West Nusa Tenggara, Indonesia in 2014

Type of farm machinery; # cases	Performance category		
	Poor	Fair	Good
Hand tractor 14 cases	Coverage 8-15 ha/year B/C 0.9-1 BEP 20-25 ha/year 7 cases of 14 cases	Coverage 25-27 ha/year B/C 1.3-1.6 3 cases of 14 cases	Coverage 35 ha/year BC >1.8 4 cases of 14 cases
Trans planter 2 cases	Coverage 20 ha/year B/C < 0.8 BEP 30 ha/year 1 case of 2 cases	-	Coverage 52 ha/year B/C > 1.85 1 case of 2 cases
Power thresher 6 cases	Coverage 8-12 ha/year B/C 0.6-0.9 BEP 15 ha/year 4 case of 6 cases	Coverage 20 ha/year B/C 1.3 2 case of 6 cases	-
Combine harvester 6 cases	Coverage < 40 ha/year B/C < 1.2 BEP 45 ha/year	Coverage 60 ha/year B/C 1.5 1 case of 6 cases	Coverage 90 ha/year B/C > 2 5 case of 6 cases
Dryer 5 cases	Coverage 20 ha/year B/C 0.4 BEP 50 ha/year 4 cases of 5 cases	Coverage 62 ha/year B/C 1.25 1 case of 5 cases	-

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*Towards a more resilient, inclusive
and sustainable Asia and the Pacific*

CSAM, Centre for Sustainable Agricultural Mechanization, is a regional institution of the United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP), based in Beijing, China. CSAM started operations in 2004, built on the achievements of the Regional Network for Agricultural Machinery (RNAM) established in 1977 with support of UNDP, FAO and UNIDO, and the United Nations Asian and Pacific Centre for Agricultural Engineering and Machinery (UNAPCAEM). CSAM serves the 62 members and associate members of UNESCAP.

The vision of CSAM is to achieve production gains, improved rural livelihood and poverty alleviation through sustainable agricultural mechanization for a more resilient, inclusive and sustainable Asia and the Pacific.

CSAM's objectives are to enhance technical cooperation among the members and associate members of UNESCAP as well as other interested member States of the United Nations, through extensive exchange of information and sharing of knowledge, and promotion of research and development and agro-business development in the area of sustainable agricultural mechanization and technology transfer for the attainment of the internationally agreed development goals including the Millennium Development Goals in the Asia-Pacific region.

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