**UNIVERSITEIT** 

Ayeyarwaddy Region, Myanmar

**Research Objectives:** 

rice supply chain

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## Understanding Uncertainty in the Rice Supply Chain in Ayeyarwaddy Region, Myanmar

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Results

**Table:** Descriptive statistics of the uncertain factors in the rice supply chain (N=215)

Items	Code	Disagree	Neutral	Agree		and the second s		Uncertainty and Associated Mitigation Strategies for the Farmers		
		(Scale 1-3)	(Scale 4)	(Scale 5-7)	Mean		u	They reduced the labor and inputs 3.25		
Supply Uncertainty (SU)	SU1	15.82	3.72	80.46	5.66***	E autority	me gatic	High labor and input costs 6.02		
	SU2	17.22	2.79	79.99	5.53***		st ti Miti gy	They change their sowing time a little 3.98		
	SU3	17.68	4.19	78.14	5.30***		arve nty// trate	Uneven rain during the cultivation period		
Demand Uncertainty (DU)	DU1	7.91	4.19	87.90	5.79***	En 2	re-h srtaii st	They gave money to labors in advance		
	DU2	8.84	4.65	80.51	5./3 5./7***		P	They gave money to labors in advance		
Process Uncertainty (PU)	D03 PU1	4.00	9 30	80.93	5.47			Labor scarcity in the peak season		
	PU2	6.06	13.95	80.00	5.50***		E The	ey waited for the higher price without selling immediately 4.60		
	PU3	8.38	14.88	76.75	5.22***		time igat	Price decreases as soon as the paddy is harvested 6.02		
Planning and Control Uncertainty (PCU)	PCU1	43.25	13.02	43.71	3.88***	CLU3:	'est ' Mitt egy	They used the chemicals to get rid of rodents 4.10		
	PCU2	36.74	13.02	50.24	4.08***	Flooding	narv nty/ trat	Rodent problem at the time of drying and storage		
	PCU3	34.88	13.95	51.17	4.14***	occurrences	ost-l ertai s	They used the cushions to prevent rain for the rice harvest		
	CU1	15.82	9.77	74.41	5.17***	affecting firms	Pol	They used the cushions to prevent rain for the free harvest		
(CU)	CU2	21.4	10.23	68.37	4.82***	unpredictable		Uneven rain at the time of harvest after harvest		
$(\mathbf{U}\mathbf{U})$	CU3	21.86	8.84	69.31	4.84***	in each year		$\begin{array}{cccccccccccccccccccccccccccccccccccc$		
Government Uncertainty (GU)	GU1	14.88	8.37	76.74	5.40***	and CLU4. The				
	GU2	12.56	9.77	77.68	5.44***	duration of		Uncertainty and Associated Mitigation Strategies for the Millers		
	GU3	24.18	13.95	61.85	4.84***	flooding is				
Climate Uncertainty (CLU)	CLU1	10.7	4.65	84.64	5.80***	unpredictable	sing Mit egy	They hired the mechanics immediately		
	CLU2	12.56	4.65	82.79	5./3	over the years	cess ne nty/ strat	The machine breakdown at the processing time 6.24		
		7.91 8.38	3.20	87.01	6.00	highest mean	-pro tir ertai	They paid high price for the skilled labor in processing 4.24		
	CL04	0.50	5.72	07.91	0.00	values	Pre Unc gati	Skilled labor scarcity in the processing 6.00		
Table: Structure of co	mponent r	natrix for the	rice supply	chain $(N=215)$						
Types of uncertainty	Code			Compor	ient		sing Mit egy	They used some control measures to protect rodents		
Types of uncertainty	Code	1	2	3 4	5	6 7	nty/	Storage pests and rodents destruction during the storage time 5.60		
	CLU3	.890					pro tir ertai	They kept their rice when the price was low 3.68		
Climate Uncertainty	CLU2	.889	- The mo	ost important unc	ertainty componer	nt	Post	Price instability at the selling time		
(CLU)	CLU4	.887						The instability at the sening time		
	CLU1	.830 _						$\begin{array}{cccccccccccccccccccccccccccccccccccc$		
Planning and Control Uncertainty (PCU)	PCU2		.953					wiean value		
	PCU3		.950	The second impo	rtant uncertainty of	component	Uncertainty and Associated Mitigation Strategies for the Distributors			
• ` ` /	PCU1		.833				(			
Competitor Uncertainty (CU) Government Policy Uncertainty (GU)	CU2			.952			g Jiti	They have to buy rice from the suppliers at the current price 4.97		
	CU3			.944			ellin ty/N ateg	Price instability at buying 5.98		
	CU1			.668			re se time n str	These however does dit from how here 2.08		
	GUI			.825			sefo ncer atio	They borrowed credit from banks		
	GU3			.800			E UI B	Limited capital availability to invest their business 4.68		
Process Uncertainty (PU)	GU2			.758				They used some control measures to protect pests and rodents 4.12		
	PU2				.824		ation	Storage pests and rodents destruction 4.93		
	PUI DU2				.//1		time litig	They checked their rice quality continuously		
Supply Uncertainty (SU)	CU1				./14	840	ling ty/N, ateg	They checked then fice quality continuously		
	SUI2				•	808	t sel taint str	Quality deterioration of rice during storage 4.57		
	SU3					678	Ai	They kept their rice until the price was high 3.47		
	505				•	.070	ĴŢ			

	DU2							.832
Demand Uncertainty (DU)	DU3							.727
	DU1							.700
Eigen value	3.270	2.706	2.393	2.085	2.004	1.989	1.978	
% of Variance	14.864	12.298	10.879	9.478	9.108	9.039	8.989	
Cumulative % of va	14.864	27.161	38.041	47.519	56.627	65.667	74.656	

◆ The unpredictable climate is an essential component because it effects on the agricultural and socio-economic systems in both directly and indirectly especially in developing countries.

\* Planning and control uncertainty referring to "on time and correction of information involved production and inventory availability". This likely means that the information technology is not implemented in Myanmar rice industry.

## Price instability at the selling time 5.57 2 0 4 6 Mean value



- Among seven uncertainty factors, disaster for rice supply chain is serious source of uncertain factor. Moreover, the actors should take into account to handle the *planning and control uncertainty*.
- Department of Agriculture cooperating with the Department of Meteorology should educate the farmers how to effectively use the information for their agricultural activities, especially rice cultivation. The transparent information exchange is essentially needed to improve the rice supply chain.
- \* The findings of this study confirm that the rice supply chain actors perceive several sources of uncertainty and employ different mitigation strategies. All rice supply chain actors especially highly perceive the price *instability* for their product in the rice supply chain.

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