(Draft) CREW RESEARCH METHODOLOGY

II. MATRIX (STAPLE FOOD SECTOR)

Different staple crops are being looked at in each CREW project country. The choice of staple food is as under:

- (i) The Philippines Rice
- (ii) India Wheat
- (iii) Ghana Maize
- (iv) Zambia Maize

The matrix under staple food has been formulated on the basis of supply chain (production-procurement-storage-processing-marketing&distribution). Under each section of the supply chain, country-wise reforms/acts/programmes which have implications on the staple food market have been mentioned. With respect to each sector and reform(s), variables affecting the producer and consumers have been identified. Further, the primary and secondary data sources have been enlisted which will help in testifying the benefits.

It has been observed that through the supply chain, while production and procurement directly affects the producers (farmers), distribution and marketing directly affects consumers (end consumers). The matrix follows this logic. However, it has also been noticed that the storage submarket is also gaining attention of policymakers, and therefore it has been included in this analysis (though not as thoroughly as the other submarkets). The benefits from the reforms in this sub-market could benefit large farmers and traders as they have been designed now. It would be interesting to explore if at some stage, these reforms can also be designed such that medium and small farmers can also enjoy the benefits.

To exemplify the matrix, the different stakeholders in the supply chain have been elucidated in the footnotes.

		Country Reform	Impact on		Data	a Source
	Country	Policy, Law, Programme	Consumers OR Producers	Variables	Secondary Data	Primary Data
Production	The Philippines	Annual General Appropriations Act Agriculture and Fisheries Modernization Act	Impact on Producers	Access and Cost Growth	 Existence and implementation of schemes/ subsidies/ facilities on inputs (seeds, fertilisers and credit) Modes of information dissemination about above schemes Cost of inputs (fertiliser, seeds) Cost of subsidies Percentage of the farming community accessing credit Total credit disbursed to farmers by the public sector and the private sector banks/financial institutions Changes in land tenure systems and effect on access to land Production of rice over years (volume – (i) production per hectare (ii) size of available arable land) 	 Feedback on availability of inputs (volume/time/price) Feedback on availing credit facilities (time/benefits) Cost benefits under the schemes/ policy reforms Return on investments over time Feedback on farm price support schemes (usefulness/ periodicity)
	India	Agriculture Inputs Policy – Administrative	Impact on Producers	Access and Cost	 Nature and percentage of farmers (large scale/ small scale) Incentives to retain farmers (time based schemes¹) Existence and implementation of schemes/ subsidies/ facilities on inputs (seeds, fertilisers and credit), 	- Feedback on on awareness and access to inputs/ subsidies (volume/time/price/quality)
		measures and policy reforms			incremental change over time in input availability - Cost of inputs (fertiliser, seeds)	Feedback on availing credit facilities (time/benefits)Cost benefits under the scheme/ policy

¹ Periodic schemes announced by the government (regarding subsidies/ credit facilities)

	Country Reform	Impact on		Data	a Source
Country	Policy, Law, Programme	Consumers OR Producers	Variables	Secondary Data	Primary Data
			Growth	 Cost of subsidies Percentage of the farming community accessing credit Total credit disbursed to farmers by the public sector and the private sector banks/financial institutions Changes in land tenure systems and effect on access to land Production of wheat over years 	reforms - Return on investments over time
				 (volume– (i) production per hectare (ii) size of available arable land) Nature of farmers (large scale/ small scale/ commercial/ household/ mixed) Incentives to retain farmers (time based schemes²) 	 Awareness of time based schemes Feedback on such schemes (usefulness/periodicity) Feedback on the contribution of schemes in attaining production/productivity growth
Ghana	Plants and Fertilizers Act, 2010	Impact on Producers	Access and Cost	 Price of seeds and fertilisers under the Act Existence and implementation of schemes/ subsidies/ facilities on inputs (seeds, fertilisers) Percentage of the farming community accessing credit Changes in land tenure systems and effect on access to land 	 Feedback on access to inputs/ subsidies (volume/time/price) Feedback on availing credit facilities (time/benefits) Cost benefits under the scheme/ policy reforms
			Growth	- Production of maize over years (volume– (i) production per hectare (ii) size of available arable land)	Awareness of time based schemesFeedback on such schemes (usefulness/periodicity)

² Periodic schemes announced by the government (regarding subsidies/ credit facilities)

	Country Reform	Impact on		Data	a Source
Country	Policy, Law, Programme	Consumers OR Producers	Variables	Secondary Data	Primary Data
				 Nature and percentage of farmers (large scale/ small scale/ commercial/ household/ mixed) Incentives to retain farmers (time based schemes) 	- Return on investments over time
Zambia	Farmer Input Support Programme, 2002	Impact on Producers	Access and Cost	 Existence and implementation of schemes/ subsidies/ facilities on inputs (seeds, fertlisers and credit) Cost of inputs (fertiliser, seeds) Percentage of the farming community accessing credit Changes in land tenure systems and effect on access to land 	 Feedback on access to inputs/ subsidies (volume/time/price) Feedback on availing credit facilities (time/benefits) Cost benefits under the scheme/ policy reforms
			Growth	 - Production of maize over years (volume– (i) production per hectare (ii) size of available arable land) - Nature of farmers (large scale/ small scale/ commercial/ household/ mixed) - Incentives to retain farmers (time based schemes) 	 Awareness of time based schemes Feedback on such schemes (usefulness/periodicity) Return on investments over time

		Country Reform	Impact on		Data	a Source
	Country	Policy, Law, Programme	Consumers OR Producers	Variables	Secondary Data	Primary Data
Procuremen t	The Philippines	Presidential Decree No. 4 of 1972: Charter of NFA Where, NFA procures from farmers at the govt support price	Impact on Producers	Access and Cost	 Govt support price³ over time Frequency of revision of govt support price over time Seasonal procurement Network of NFA, across The Philippines Volume procured by NFA versus private entities Existing procurement schemes Mode of payment to farmers by the procuring entities 	 Information regarding govt support price Length of notice before change in govt support price Whether farmers prefer to sell produce to millers/ agents or NFA Difference between govt support price and price quoted by millers/ middle men Payment to farmers (ease/time/method) Accessibility of NFA Buying Center
				Entry ⁴ Growth	 Process of obtaining license and registration (time/ renewal/ fees) Number and types of licenses issued over time Volume procured over time 	 Feedback on procedure of licensing and registration (time, fees, challenges) from licensees Feedback from licensees (concerns/
	India, Bihar	Establishment of State Government monopoly in procurement of wheat, vide notification dated 15.04.13	Impact on Producers	Access and Price	 Number of entries over time Wholesale (mandi) market price determination mechanism, Wholesale (mandi) market price over time Seasonal procurement, MSP-Wholesale market price interplay Network of state procurement entities Mode of payment to farmers by the 	challenges) - Information regarding MSP (mode of communication and awareness of the prevailing MSP set by the Govt.) - Length of notice before change in MSP - Payment to farmers (ease/time/method) - Information on prevailing (wholesale/mandi) market price - Whether farmers prefer to sell produce to govt / or private entities/ open market

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 $^{^{3}}$ Government support price is the base price set by the government at which farmer's produce may be bought

⁴ In Philippines, besides NFA, farmers may directly sell produce to millers/ consolidators/ commission agents/ independent traders, etc. Each player is required to obtain license and register with the NFA. Hence, we are using information about the number of millers/traders/agents (licensees) to assess the level of freedom/choice that the farmer has in selling his/her produce)

	Country Reform	Impact on		Data	a Source
Country	Policy, Law, Programme	Consumers OR Producers	Variables	Secondary Data	Primary Data
India, Rajasthan	Agriculure Produce Marketing Committee Act (APMC Act)		Entry ⁵ Growth Access and Cost	procuring entities - Number, nature of procuring entities - Volume procured over time - Number of entities over time - Wholesale (mandi) market price determination mechanism, - Wholesale (mandi) market price over time - Seasonal procurement, MSP-Wholesale market price interplay - Network of procurement entities - Fees charged by procurement agents - Volume procured by govt versus private entities - Existing procurement schemes - Mode of payment to farmers by the procuring entities	 Difference between MSP and price quoted by private players Ease of selling for the farmers (access/ time/ payment) Feedback from state entities (PACS etc.)(concerns/ challenges) Information regarding MSP (mode of communication and awareness of the prevailing MSP set by the Govt.) Length of notice before change in MSP Whether farmers prefer to sell produce to govt / orprivate entities/ open market Difference between MSP and price quoted by private players Payment to farmers (ease/time/method) Information on prevailing (wholesale/ mandi) market price Whether farmers prefer to sell produce to govt / or private entities/ open market Difference between MSP and price
			Entry ⁶	 Process of obtaining license and registration (time/ renewal/ fees) Number of licenses issued over time 	quoted by private players - Feedback on procedurement of licens and registration (time, fees, challenges) from licensees (both existing players and new

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⁵ In Bihar, state government has a monopoly over the procurement system . . The Primary Agriculture Credit Societies (PAC S) and/or block level purchase centres of Bihar State food Corporation act as local procurement agencies under the overall guidance of Bihar State food Corporation, which has been designated as the nodal agency for procurement of wheat in the state.

⁶ In Rajasthan, Decentralised Procurement System is running on a trial basis in select districts.

	Country Reform	Impact on		Data	a Source
Country	Policy, Law, Programme	Consumers OR Producers	Variables	Secondary Data	Primary Data
				- Types/ Nature of licenses issued	entrants)
			Growth	Volume procured over timeNumber of entries over time	- Feedback from licensees (concerns/challenges)
Ghana	National Food Buffer Stock Company (NAFCO)	Impact on Producers	Access and Cost Entry ⁷ Growth	 Minimum guaranteed price over time Frequency of revision of minimum guaranteed price over the years Seasonal procurement Network of procurement entities Fees charged by procurement agents Volume procured by govt versus private entities Existing procurement schemes Mode of payment to farmers by the procuring entities Process of obtaining license and registration (time/ renewal/ fees) Number of licenses issued over time Types/ Nature of licenses issued Volume procured over time Number of entries over time 	 Information regarding minimum guaranteed price (transparency/ method/ participation) Length of notice before change in minimum guaranteed price Whether farmers prefer to sell produce to wholesalers, etc. or govt. agents Difference between minimum guaranteed and price quoted by wholesalers/ etc Payment to farmers (ease/time/method) Feedback on procedure of licensing and registration (time, fees, challenges) from licensees (both existing players and new entrants) Feedback from licensees (concerns/ challenges)

⁷ In Ghana, the procurement process is carried out by market queens, wholesalers, district assemblers/ brokers

		Country Reform	Impact on		Data	a Source
	Country	Policy, Law, Programme	Consumers OR Producers	Variables	Secondary Data	Primary Data
	Zambia	Food Reserve Agency, 1995	Impact on Producers	Access and Cost Entry ⁸ Growth	 Maize support price over time Frequency of revision of maize price support over time Seasonal procurement Network of procurement entities Fees charged by procurement agents Volume procured by govt versus private entities Existing procurement schemes Mode of payment to farmers by the procuring entities Quantities bought by private traders No. of big traders over time Volume procured over time Number of entries over time 	 Information regarding maize price support (transparency/ method/ participation) Length of notice before change in maize price support Whether farmers prefer to sell produce to trading wholesalers, etc or govt agents Difference between maize support price and price quoted by wholesalers/ etc Payment to farmers (ease/time/method) Feedback of private traders Feedback from licensees (concerns/ challenges)
Storage ⁹	The Philippines	Presidential Decree No. 4 of 1972: Charter of NFA to regulate rice	Consumers	Cost	Coo	o Ctudu
			Impact on Producers	Cost Entry Investment/	Cas	se Study

⁸ In Zambia, FRA is the agency that is involved in procurement. The millers used to buy maize from FRA at a subsidised price for the preparation of 'Mealie Meal', coarsely ground maize. The millers in turn would distribute the mealie meal. But due to a recent removal of subsidy on maize, the millers have entered the procurement chain to reduce the maize milling.

⁹ In terms of storage, the project wants to look at any reform / scheme/statute/government that allows the farmers to their produce before it is sold. In terms of storage post procurement, it would be useful to look at any reform measure (*if applicable*) in practice like the WDRA schemes in India. The accessibility of such facilities in terms of local / regional centres can have an impact on the farmers in the pre-sales phase. As the Philippines, Ghana and Zambia do not have any explicit statute regulating storage, we would like the countries to do an analysis of the process undertaken by their respective governments for the same

		Country Reform	Impact on		Data	a Source
	Country	Policy, Law, Programme	Consumers OR Producers	Variables	Secondary Data	Primary Data
				Return		
				Growth		
	India	Warehouse Development and	Impact on Consumers	Price Access	NA	
		Regulatory act 2007		Quality		
		Private Entrepreneurship Guarantee Scheme 2001	Impact on Producers	Cost	Existence of schemes under warehousing Existence of schemes to incentivise investment in warehousing (PPP)	 Awareness of access to warehousing schemes Warehousing facilities have resulted in better price realization Cost benefits to farmers, traders
				Entry	 No. and types of providers and users of storage facilities Increase in number of private players since the reform No. of users over time 	- Feedback of players (challenges and concerns)
				Growth	Decrease in wastageCapacity (volume) of storagePercent of capacity utilization	- Storage has resulted in decrease of wastage
	Ghana		Impact on Consumers			
			Impact on	Cost	Cas	se Study
			Producers	Entry		
2	Zambia	Food Reserve Agency, 1995	Impact on Consumers	Growth		
			Impact on	Cost	- Existence of schemes under	- Awareness of warehousing schemes

		Country Reform	Impact on		Data	a Source
	Country	Policy, Law, Programme	Consumers OR Producers	Variables	Secondary Data	Primary Data
Distribution and Marketing ¹⁰	The Philippines	Presidential Decree No. 4 of 1972: Charter of NFA Responsibility to distribute and ensure affordable rice price to consumers regulate licensing and registration of	Impact on Consumers	Entry Growth Price vis-à-vis input cost	warehousing - Existence of schemes to incentivise investment in warehousing (PPP) - No. of players - Increase in number of private players since the reform - Decrease in wastage - Capacity (volume) of storage - Percent of capacity utilization - Retail price of rice over the years - Seasonal variation(s) in price over the years - Schemes for price stabilisation - Elasticity of demand of rice - Volume sold of substitute foods - Price of substitute foods - Import Price over time	 Warehousing facilities have resulted in better price realization Cost benefits to traders Feedback of players (challenges and concerns) Storage has resulted in decrease of wastage Monthly household expense on rice (percentage) Volume of consumption per month (per head) Seasonal price variation Communication of price rise (method/ length of notice period)
		traders, other market players, importers and impose import tariffs and import controls RA 8178, The		Quality	 Existing quality standards for domestic rice, imported rice Standard setting process Implementation of standardisation schemes Availability/ consumption of 	 Quality concerns for consumers Fluctuation in quality (including seasonal) Difference in quality of domestic and foreign rice Awareness of quality standards Fluctuation in supply

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¹⁰ Marketing and distribution are the elements of the supply chain that directly add cost to consumers. But these nodes see a presence of the intermediaries (like traders/millers/importers/agents/wholesalers etc.). Therefore even though in the project producers are the farmers, for the sake of covering the supply chain the country specific intermediaries have been looked at to understand the implication of access and price that it builds on the consumer.

	Country Reform	Impact on		Data	a Source
Country	Policy, Law, Programme	Consumers OR Producers	Variables	Secondary Data	Primary Data
	Tariffication Act Where, tariffs and quantitative restrictions are imposed on importers			domestic rice versus imported rice over the years - Schemes for effective distribution - Amount of imported rice allowed in domestic market over the years - Variety of rice available - Popular substitutes of the selected staple	 Availability at retail shops Ease of access to imported rice (volume/ seasonality) Variety of rice available vis-à-vis quality
		Impact on Producers ¹¹	Cost		
		Troducers	Entry	 Entry barriers for foreign players (licensing/ transparency/ fee) Tariffication over the years Number of importers over the years Process of obtaining license and registration (time/ renewal/ fees) Number of licenses issued over the years Types/ Nature of licenses issued by the NFA 	 Feedback of distributors vis-à-vis contractual obligations Presence of cartels Feedback on procedure of licensing and registration (time, fees, challenges) from licensees
			Growth	 Volume of imported rice over time Volume of rice privately sold over time (retail) 	- Profit margin of importers/distributors/ traders, millers, etc (percentage)
India, Bihar	Repealing the APMC by Bihar, 2006	Impact on Consumers ¹²	Price vis-à-vis input cost	- Retail price of wheat over the years	- Monthly household expense on wheat

¹¹ In the Philippines, this would cover Millers/Traders

	Country Reform	Impact on		Data	a Source
Country	Policy, Law, Programme	Consumers OR Producers	Variables	Secondary Data	Primary Data
	Institutions / Statutes for Standards for produce in India: Agricultural Marketing Information Network			 Seasonal variation(s) in price over the years (PDS and retail level) Elasticity of demand of rice Volume sold of substitute foods Price of substitute foods Import Price over time 	 (percentage) Volume of consumption per month (per head) Seasonal price variation Communication of price rise (method/length of notice period)
	(Agmarknet) / Directorate for the Prevention of Food Adulteration (PFA)/ Bureau of Indian Standards (BIS)	od)/	Access	Volume of wheat through PDSVolume at retail levelVariety of wheat available	 Ease of access Time spent in obtaining wheat through PDS Variation in access (seasonality) Variety of wheat available vis-à-vis quality
			Quality	Existing quality standardsStandard setting processImplementation of standardisation schemes	 Quality concerns for consumers Fluctuation in quality (including seasonal) Awareness of quality standards
		Impact on Producers	Cost	NA	 Impact on cost of production, marketing, price realisation
			Entry	 Number, Percentage of public and private players (direct marketing, contract farming, private markets, traders, commission agents) Number of private players over the years Entry barriers (license/ 	- Perception of private players (old players and new entrants)

¹² In India, distribution is undertaken in two ways and bot would be looked at in the project. 1) At the retail: Where the consumer can buy wheat over the counter at market price, 2) Public Distribution System (PDS): this is a system under which the government provides staple to the lower sections of the consumers at a subsidized price. These consumers have a designated monthly ration for wheat and it is carried through specific stores / shops.

	Country Reform	Impact on		Data	a Source
Country	Policy, Law, Programme	Consumers OR Producers	Variables	Secondary Data	Primary Data
India, Rajasthan	Amendment of APMC Act by	Impact on Consumers	Growth Price vis-à-vis input cost	transparency/renewal) - Volume of wheat distributed over the years by the government - Number of traders/private players, etc - Volume handled by the traders/etc - Retail price of wheat over the years - Seasonal variation(s) in price over	 Profit margin of wholesalers/ traders/private players, etc (percentage) Investment, return of private players Impact on productivity of farmers (contract farming) Health of the sector Growth climate Monthly household expense on wheat (percentage)
ragustian	Rajasthan, 2005 to bring it in line with Model APMC Act	Consumors	input cost	the years (PDS and retail level) - Elasticity of demand of rice - Volume sold of substitute foods - Price of substitute foods - Import Price over time	 Volume of consumption per month (per head) Seasonal price variation Communication of price rise (method/length of notice period)
			Access	Volume of wheat through PDSVolume at retail levelVariety of wheat available	 Ease of access Time spent in obtaining wheat through PDS Variety of wheat available vis-à-vis quality
			Quality	 Existing quality standards Standard setting process Implementation of standardisation schemes Capacity for implementation (annual budget/ number of staff/ network/etc) 	 Quality concerns for consumers Fluctuation in quality (including seasonal) Awareness of quality standards
		Impact on Producers	Cost		- Impact on cost of production, marketing, price realisation

	Country	Country Reform	Impact on	Variables	Data Source	
		Policy, Law, Programme	Consumers OR Producers		Secondary Data	Primary Data
				Entry	 Number, Percentage of public and private players (direct marketing, contract farming, private markets, traders, commission agents) Number of private players over the years Entry barriers (license/transparency/renewal) 	- Perception of private players
				Growth	 Volume of wheat distributed over the years by the government Number of traders/etc Volume handled by the traders/etc 	 Profit margin of wholesalers/ traders, private players, etc (percentage) Investment, return of private players Impact on productivity of farmers, (contract farming) Health of the sector Growth climate
	Ghana	NAFCO	Impact on Consumers	Price vis-à-vis input cost	 Schemes for distribution of maize to the consumers Retail price of maize over the years Seasonal variation(s) in price over the years Elasticity of demand of rice Volume sold of substitute foods Price of substitute foods Import Price over time 	 Monthly household expense on maize (percentage) Volume of consumption per month(per head) Seasonal price variation Communication of price rise (method/length of notice period)
				Access	 Volume of maize distributed through govt Volume at retail level Variety of maize available Existing quality standards 	 Ease of access Variety of maize available vis-à-vis quality Quality concerns for consumers

	Country	Country Reform	Impact on	Variables	Data Source		
		Policy, Law, Programme	Consumers OR Producers		Secondary Data	Primary Data	
					Standard setting processImplementation of standardisation schemes	- Fluctuation in quality (including seasonal) Awareness of quality standards	
			Impact on Producers	Cost			
				Entry	 Number of private players over the years Entry barriers (license/transparency/renewal) 	- Perception of private players	
				Growth	 Volume of maize distributed over the years Number of market queens/ traders/etc Volume handled by the traders/etc 	 - Profit margin of market queens/ wholesalers/ traders, etc (percentage) - Health of the sector Growth climate 	
	Zambia	Food Reserve Agency Removal of Subsidies on Millers, 2013	Impact on Consumers	Price vis-à-vis input cost	 Schemes for distribution of maize to the consumers Retail price of wheat over the years Seasonal variation(s) in price over the years Change in price after removal of subsidy Cost of transportation of maize over the years 	 Monthly household expense on maize (percentage) Volume of consumption per month (per head) Seasonal price variation Communication of price rise (method/ length of notice period) 	
				Access	Volume of maize distributed through govtVolume at retail levelVariety of maize available	 Ease of access Variety of maize available vis-à-vis quality 	
				Quality	Existing quality standardsStandard setting process	- Quality concerns for consumers - Fluctuation in quality (including	

	Country	Country Reform	Impact on Consumers OR Producers	Variables	Data Source	
		Policy, Law, Programme			Secondary Data	Primary Data
					- Implementation of standardisation schemes	seasonal) - Awareness of quality standards
			Impact on Producers	Cost		
				Entry	 Number of private players over the years Entry barriers (license/transparency/renewal) 	- Perception of private players
				Growth	 Volume of maize distributed over the years Number of market millers/traders/etc Volume handled by the traders/etc 	 - Profit margin of market queens/ wholesalers/ traders, etc (percentage) - Health of the sector - Effect of domination of millers Growth climate