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Exploring the factors and attributes of value-adding activities and their impact on moderators and mediators within Rice Value Chains in the Ayeyarwady Delta

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This thesis is submitted in partial fulfilment of the requirements of The University of Salford for the degree of PhD in Operations, Logistics and Supply chain management.

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Declaration

 **DOCTORAL
SCHOOL**

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Assessment Title – Interim

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List of Abbreviations (update)

ASCN	Agriculture Supply Chain Networks
ASEAN	Association of Southeast Asian Nations
AVC	Agriculture Value Chains
CAIP	Commercial Agricultural Insurance Programs
CH ₄	Methane
CO ₂	Carbon dioxide
CRM	Customer Relationship Management
DoP	Department of Population
EU	European Commission
FAO	Food and Agriculture Organization of the United Nations
FDI	Foreign Direct Investment
FFSC	Fresh Food Supply Chain
FSC	Food Supply Chain
FSCM	Food Supply Chain Management
FSQM	Food Supply Quality Management
FVC	Food Value Chain
GAP	Good Agricultural Practices
GCC	Global Commodity Chains
GDP	Gross Domestic Product
GFSC	Global Food Supply Chains
GHGs	Greenhouse Gases
GSC	Global Supply Chains
GSCM	Global Supply Chain Management
GVC	Global Commodity Chains
IFPRI	International Food Policy Research Institute
IRRI	International Rice Research Institute
JV	Joint Venture
LIFT	Livelihoods and Food Security Fund (UKAID)
MADB	Myanmar Agriculture Development Bank
MAPCO	Myanmar Agribusiness Public Company
MEB	Myanmar Economic Bank
MECF	Ministry of Environmental Conservation and Forestry
MIC	Myanmar Investment Commission
MIRI	Myanmar Rice Research Institute
MNC	Multinational Corporation
MOALI	Ministry of Agriculture Livestock and Irrigation
MRF	Myanmar Rice Federation
MRSDS	Myanmar Rice Sector Development Strategy programme
MSU	Michigan State University
N	Nitrogen
N ₂ O	Nitrous Oxide

NAIS	National Agricultural Innovation System
NARC	National Agricultural Research Council
NARS	National Agricultural Research System
NES	National Export Strategy
NGO	Non-Governmental Organisation
OECD	Organisation for Economic Co-operation and Development
PVC	Porter's Value Chain
RBC	Resource-based View
RSC	Rice Specialization Companies
RVC	Rice Value Chain
SaaS	Software as a service
SC	Supply Chain
SCM	Supply Chain Management
SCN	Supply Chain Networks
SCO	Supply Chain Orientation
SLORC	The State Law and Order Restoration Council
SMO	Supply Management Orientation
UN	United Nations
UNDESA	The United Nations Department of Economic and Social Affairs
UNDP	United Nations Development Programme
UNFPA	United Nations Population Fund
UNHRC	United Nations Human Rights Council
UNOPS	United Nations Office for Project Services
UNWFP	United Nations World Food Programme
US	United States
USDA	United States Department of Agriculture
VAAS	Vietnam Academy of Agricultural Sciences
VCM	Value Chain Management
WB	World Bank
WBG	World Bank Group
WHO	World Health Organization

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Dedication

I dedicate this thesis to my dear wife Wantana, who has supported me throughout this three-year journey and to my children who have been there every step of the way.

Ithaka

"My journey has started."

As you set out for Ithaka
hope the voyage is a long one,
full of adventure, full of discovery.
Laistrygonians and Cyclops,
angry Poseidon- don't be afraid of them:
you'll never find things like that on your way.
as long as you keep your thoughts raised high,
as long as a rare excitement
stirs your spirit and your body.
Laistrygonians and Cyclops,
wild Poseidon- you won't encounter them.
unless you bring them along inside your soul,
unless your soul sets them up in front of you.
May there be many a summer morning when,
with what pleasure, what joy,
you come into harbours seen for the first time;
may you stop at Phoenician trading stations
to buy fine things,
mother of pearl and coral, amber and ebony,
the sensual perfume of every kind-
as many sensual perfumes as you can;
and may you visit many Egyptian cities
to gather stores of knowledge from their scholars.
Keep Ithaka always in your mind.
Arriving there is what you are destined for.
But do not hurry the journey at all.
Better if it lasts for years,
so you are old by the time you reach the island,
wealthy with all you have gained on the way,
not expecting Ithaka to make you rich.
Ithaka gave you the marvellous journey.
Without her, you would not have set out.
She has nothing left to give you now.
And if you find her poor, Ithaka won't have fooled you.
Wise as you will have become, so full of experience,
you will have understood by then what these Ithakas mean.

Abstract

Supermarkets across the globe have direct points of contact and data capture systems and records of customers buying behaviour. Often these are multiple forms of real-time datasets. These datasets allow for both extrapolations of historical data that can provide predictability of future customers' needs and wants. In addition, customers often link quality to value subconsciously. This thesis intends to identify gaps in operational and management theory and practice between three independent actors, first mediators or business owners within 'rice milling production and second moderators or government officers and employees or those involved in agricultural management and policy mandates within Myanmar. This research seeks to contribute to operational management theory and practice, by examining selected academic literature, some examples of which are: Global Value Chain theory, Porters value chain theory, Porter's diamond theory, GVC-Power-theory and Operations research theory and other well-chosen source materials to identify if mediators are employing value-adding activities or processes or methods during the 'rice milling processing' stages; ultimately, increasing economic value of the final rice product. Utilizing an empirical qualitative case study driven approach employing datasets to interpret the responses from the research questions. Thus, the thesis primary evidence came from critically reviewing the interviewees' responses to the semi-structured interview questions. The comparing of three case study groups responses was performed, each interviewee's answer was evaluated using a technique called pattern matching of qualitative data method. Furthermore, to enhance the integrity and reliability of the research findings, observational research was conducted at specific locations for all three case study groups. Often, real-time 'live' documents were provided and 'when available' archival documents were critically reviewed and triangulated to understand the dynamic of the case study group. Lastly, this research illustrated a theoretical framework to identify value-adding processes at specific stages of rice milling production within agricultural supply chains; and the drivers associated with value creation to further develop a competitive advantage.

Chapter One

1. Introduction to Research

The country of Myanmar formally known as Burma comprises of a total land area of approximately 65 million hectares of which practically 13 million hectares designated as agricultural for the production of Rice, Pulses and Maize (World Bank Group, 2019). (Haggblade et al., 2013) indicate the land area comparison suggests that Myanmar is slightly under three times the land size in the UK. (Kumar & Liu, 2005) explains the role of Government as a moderator, one that is responsible for "*economic growth*" (Athambawa, 1982), from which institutional supports, regulation, funding, risk reductions and policymaking are formed so as to action specific strategies and guidelines that point towards "*developing low-tech*" businesses within the agricultural sector (Obaji & Olugu, 2014). Moderator formulates long-term policies with the intention of having a more significant 'social impact' on the population as well as increasing overall gross domestic product GDP.

1.0.1 Rice production

Evidence suggests that Myanmar continues to increase and develop rice growth throughout the nation. However, high-value-grade 'rice' yields have been decreasing; whereas low-grade 'broken' rice yields are increasing at an alarming rate, this points directly towards the elimination of 'value' within the production process that ultimately is counterproductive for all actors involved. Mediator concentrated within the area of commerce, developing new business activity and create opportunities for themselves and their employees. (Sousa et al., 2008) argues, current or revised government agricultural policies should consider the dependent position of all actors involved, to provide a sustainable and dynamic agricultural business sector. (Barney's, 1991) suggests mediators should engage in a resource-based view (RBV) process to identify specific or critical determinants, that can provide guidance to moderators, as these elements such as "*assets*,

proficiencies, organisational procedures" are under the control of the mediators, external barriers such as *"legislative systems, unproductive associations, sophisticated bureaucracy"* (Phan, 2013) and access to investments of short-term funding aggravates the desirability of the role of mediators (Safari & Saleh, 2020). A resource-based view (RBV) (Mdee, Ofori, Chasukwa & Manda, 2020) presents a critical and more comprehensive view that both mediators and moderators should consider, removing of unacceptable or unworkable policies and agricultural practices, highlighted as a significant concern.

Myanmar whole grain rice yields have been decreasing year on year, yet, broken rice yields continue to increase, which might suggest problems between these two or more actors within the Agriculture Value Chains (AVC) (Dapice, 2013); (Racionzer & Kaatrud, 2016). The research aims to explore the impact of these 'mediators and moderators' and any others that provide financial support or guidance within the Agriculture Value Chains (AVC). Furthermore, to identify which 'value-adding activities' exist or are deployed that might enhance the economic potential of whole-grain rice within the Agriculture Value Chains (AVC) (Vicol, Pritchard and Htay, 2018; Swe Mon Aung & Rachel Nelson, 2018; Herridge et al., 2019).

1. 0. 2 Interrelationship strategies

There is an opportunity to explore in more details which interrelationship mechanisms exist between Global value-adding practices and strategies found within GVCs and examine the dendritic cluster of the agricultural 'rice' value chain within the Ayeyarwady delta. Published data suggests that during the period 2010 to 2011, the 'core' agricultural sector was earning approximately 36% of the Myanmar national gross domestic product (GDP) (Aung and Santella, 2016). Recent data (European Union, 2017) explains that rice production (2015 to 2016) indicates somewhat of a slight increase from 36% to 38% of (GDP); this increase is attributed to 'broken rice' alone, again indicating a growth of rice limited by appropriate production facilities and methods. As early as 2015, the Myanmar

government announced its sustainable export-led growth strategy, to "increase production and value addition" for rice (WTO, 2015).

(GRiSP, 2014) argues that "rice farming is the largest single use of land", *Oryza sativa* is identified as the most common 'rice' that is grown or produced in Myanmar, the seeds are cultivated in dry or flooded 'wet' areas known as paddy (Maruyama et al., 2005; Inoue et al., 2012; Sittiya et al., 2011). The overall landmass of Myanmar offers approximately three (3) growths or yields per year, unusually one 'dry' and two 'wet' depending on the region; this is common in Ayeyarwady delta. Paddy rice thrives during monsoon seasons that usually starts April until October, and farmers take advantage of the environmental extremes of mass flooding across the Ayeyarwady River delta (Patra et al., 2016).

Other regions only have one dry and one wet yield per year and switch to growing alternative crops (Chivenge et al., 2020). Evidence suggests 'paddy' agricultural output analyses offers a higher potential or per cent value of GDP for the Myanmar government; hence this is the preferred or "dominant food crop" that is grown (Soe, Masahiro & Fukuda, 2015). However, (o, 2020) points out this policy direction "diminishes the economy" due to the low 'value of productivity' of rice output. Myanmar agricultural lacks value-adding activities throughout the supply chain, from the actual seeds and fertilisers to production controls and logistics; unlike its counterparts in other ASEAN countries (Linn & Maenhout, 2020). Government policy has not provided stable guidance or acceptable long-term outcomes. Many constraints remain problematic, the milling operation is identified as one of the main areas where rice 'value-adding' can be introduced or lost, due to inadequate production skills (Rahardja, Cadot, Artuso & Hein, 2016). There are accepted norms of rice output, ranging from 100% broken, 25%, 15%, 10%, and 5%, when the rice is bagged at a production stage, a combination of the 'broken rice will dictate the total value of the rice. The least amount of broken rice mixed will garner a higher market price. Within the last five years, there has been a recorded 'rapid' growth in 'broken' rice exports from Myanmar (Soe & Griffin, 2015). Broken rice is used

in an array of food processing and cosmetics; however, Africa imports broken rice for animal feeds as a primary reason. However, the problem of values should be addressed; broken rice loses upwards of 50% of its value or higher depending on global market prices. Everyday activity is for Myanmar exporters to mix 25% of broken rice per ton, with whole rice, this has not been appreciated for exports to the EU, 5% of broken rice was agreed.

1. 0. 3 Rice Exports from Myanmar

EU imports from Myanmar have shrunk due to the quality of rice products and complaints from EU-members. That Myanmar rice undercuts EU-produced rice, combined with an inadequate or inferior mix, (Phyo, 2020) a tariff has been introduced which now offers Myanmar rice at much higher prices, with the same lower quality. This has caused mediators in the rice business sector to be concerned; the same group are looking for new markets to enter into. Again, value-adding should be understood and where improvements within the production stage might be identified. Evidence suggests that "*superior quality rice sales*" are in demand, increasing year-on-year (Nelson & Aung, 2019). Whereas broken rice is often identified as 'low-grade', hence the substantial reductions in market value. Broken rice in Myanmar is usually due to poorly maintained, or outdated milling equipment, the percentage of broken rice is directly associated with the milling equipment. A need to invest in more modern milling solution can reduce to broken rice per cent and increase overall financial gains for the farmers. Nevertheless, the global market place for broken rice continues to grow, data from (2014) points towards 4.5 million tons, an increase from 3 million tons (2012) for Myanmar alone (Zorya et al., 2014). However, the global trend in broken rice exceeds \$2.4 Billion, with Thailand leading followed by India and Pakistan further ahead than Myanmar (Tridge, 2020). Notwithstanding, Myanmar whole grain rice exports have been suffering because of infrastructure elements explained above. A decrease of 770,000 tons, compared with the same period of last year (NYEIN, 2019).

It is clear that broken export volumes have increased but quality and total value have not. Cross-border trade with Thailand and "*falling prices at home*" reduced demand for Myanmar broken rice (Htwe & Loon, 2020). GDP exports for (unbroken) rice have increased over the last two year, and investments into the rice sector remain stagnant, suggesting 'incremental' improvements through Government policy are needed. Both (moderators) and business investments (mediators) are required to identify value-adding methods and elements at various stages of the milling process, specifically production and operations within the processing stage; that can lead to higher farm gate and GDP returns. Understanding the decision-making processes and influencers for 'value-adding activities' which are practised within agricultural food value supply chains; (Porter, 1980) suggests these 'activities' are intended to develop competitive advantage, thereby 'creating value' for consumers. (Ahmed, Haile, Jaffee, Zorya & Cassou, 2019), explain 2017 Myanmar export price for grain rice topped \$700, on average the 'mean' price was approximately \$572/t, whereas \$259/t for broken rice was recorded; advising total financial 'value; loses of approximately \$300-500/t.

Comparison of Grain Rice versus Broken Rice Exports											
2017 - 2018				2018 - 2019				2019 - 2020			
July - May				Jan - October				November - July			
	\$	Ton	%		\$	Ton	%		\$	Ton	%
Total	1,300,000	3600000		Total	691,000	2290000		Total	678,000	2250000	
Rice	975000	2700000	0.75	Rice	513573	1702000	0.74	Rice	421867	1400000	0.62
Broken	325,000	900000	0.25	Broken	177427	588000	0.26	Broken	256133	850000	0.38

Table 1. 1
Exports of 'Broken' rice compared to Whole grain rice

Table 1. 1 (by author) briefly **explains** the growth of exports of 'broken' rice as 0.25% highlighted in red, increasing to 0.26% highlighted in yellow to finish at 0.38% highlighted in green. Compared to reductions of whole grain rice output, indicating huge economic losses across the supply chain.

The Ayeyarwady Delta, Myanmar, is chosen as the research area for this thesis, (Denning et al. 2013) explains, this area has an approximate population of seven (7) million residents' department of population' (DoP, 2014), of which, "70 per cent of the total population live in rural areas" recorded on the 2014 census as the "*highest proportion*" than any other state within the union (DoP, 2014, p. 12); of which the vast majority of people work in agricultural rice production or associated activities that support their livelihood (Driel and Nauta 2013; LIFT, 2018). However, this region has within it a large group of stakeholders who are involved in certain parts of the food supply chain network focused on and around the rice value chains (RVCs); from large to small purchases and many entrepreneurs which wholesale to local or even export specific rice varieties.

(Wong and Eh Mywe Aye Wai 2013) explain, unfortunately, the (RVC) is "*mired with problems*" which have not improved for many years. Issues within the (RVC) are found in both up and downstream parts of the chain such as antiquated rice processing facilities that are over fifty years old, or an insufficient and regular supply of electricity throughout the region where rice production is the primary activity. These, as well as poorly constructed roads and rail and waterway networks; combined with the highest Port-loading costs for export within any ASEAN country, amounts to the continued failure of Government intervention and financial losses for those stakeholders involved within this sector (Tin Maung Shwe and Vokes 2013). (WFP, 2019) and evidence suggests that approximately 100kg or greater of cooked rice is consumed each year by many people living and working on small farmland holdings ranging from 0.5ha to 3ha in Asian countries. The Green Revolution in agriculture (Altieri & Farrell, 2018) has been referred to as the most industrious 'global' initiative of all time, bringing together agricultural know-how, technology and plant food production; without this ingenuity, there would be regions around the world in a food deficit today (Pal and Byerlee, 2005, p.177). Rice, as a commodity (Zeigler, 2017) only has an ever-fluctuating financial value depending on the quality and harvest volumes. However, in many countries, 'rice' also provides one unique importance for Governments "*political value*". Rice supply chains and their networks require development in many countries and demand some form of 'public'

funding. (World Bank, 2018) points out, over the last few years, there has been a significant shift with changing diets; global production is reporting problems with supplying these new 'foods' with cereals to feed poultry and beef. (Haggblade et al., 2013) points out, the Myanmar government's introduction of the 'national food security' confirms the Government can 'implement' specific decisions for the "*betterment of the country as a whole*", not the farmer or the business investors. Limited resources of harvesting machines mean that farm rice is harvested when the machines are within the area. 'Sun-bleached' rice, is rice drying under the hot sun causing it to break '*broken-rice*', losing much of its '*added value*' before the milling stage (The Border Consortium, 2003). This type of inadequate farming, capabilities and resources combined with sub-standard rice quality inputs only amplified the problems which produced devalued crop yields; forcing many into abject poverty (FAO, 2013). This poverty problem is a crucial driver for the Myanmar government to rectify (Dapice et al., 2010) argues; understanding the 'base' commodity value, rice production has remained the most dominant; accounting for 43% of all agricultural activities or almost five-times (5) that of the next performing commodity which is poultry (European Union, 2017).

1. 1. Research Design Flowchart

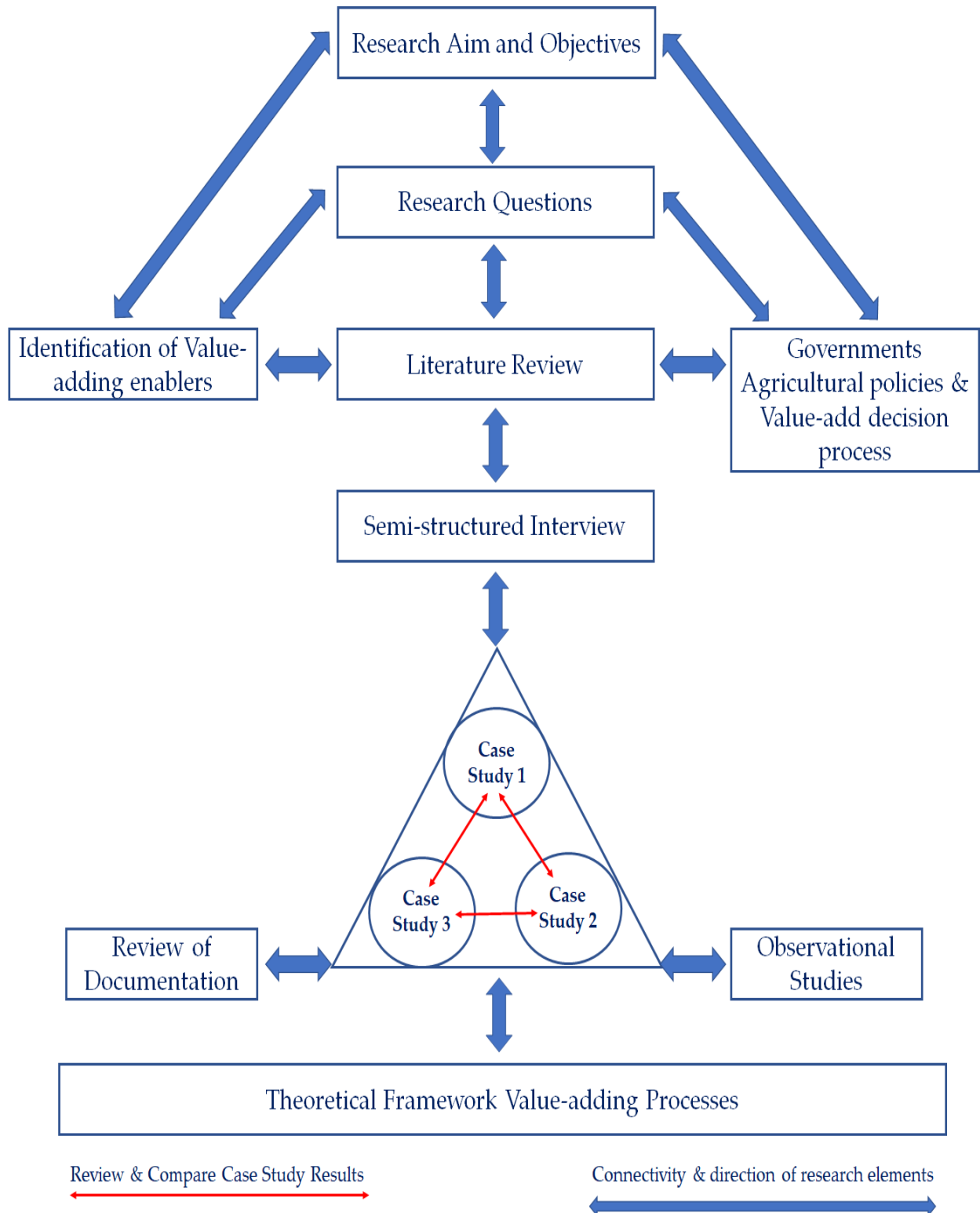


Figure 1. 1 - Research Design Map/Flowchart

1. 2. Research Questions

How Government and NGOs initiatives are moderating, and businesses are meditating on value-adding activities within the Agriculture Value Chains (AVC) of Ayeyarwady delta, Myanmar?

1. 3. Aim

This study aims to utilize the SCOR model framework and evaluate the case study qualitative results, on 'value-adding activities' practised in Agriculture Value Chains (AVC).

1. 4. Research Objectives

1. What recognised value-adding activities exist for milled rice production within Agriculture Value Chains (AVC), Global Commodity Chains (GCCs) and Global 'Food' Supply Chains (GSCs)?
2. What interrelationship or mechanisms exist between Agriculture Value Chains (AVC) and Global Value Chains (GVCs)?
3. What Government initiatives and business strategies advocate for which 'value-adding' activities (VA), for use within Agriculture Value Chains (AVC)?
4. What conceptual frameworks exist within milled rice processing and operations that conform to Global Value Chain theory?

1.5 Research contribution to knowledge

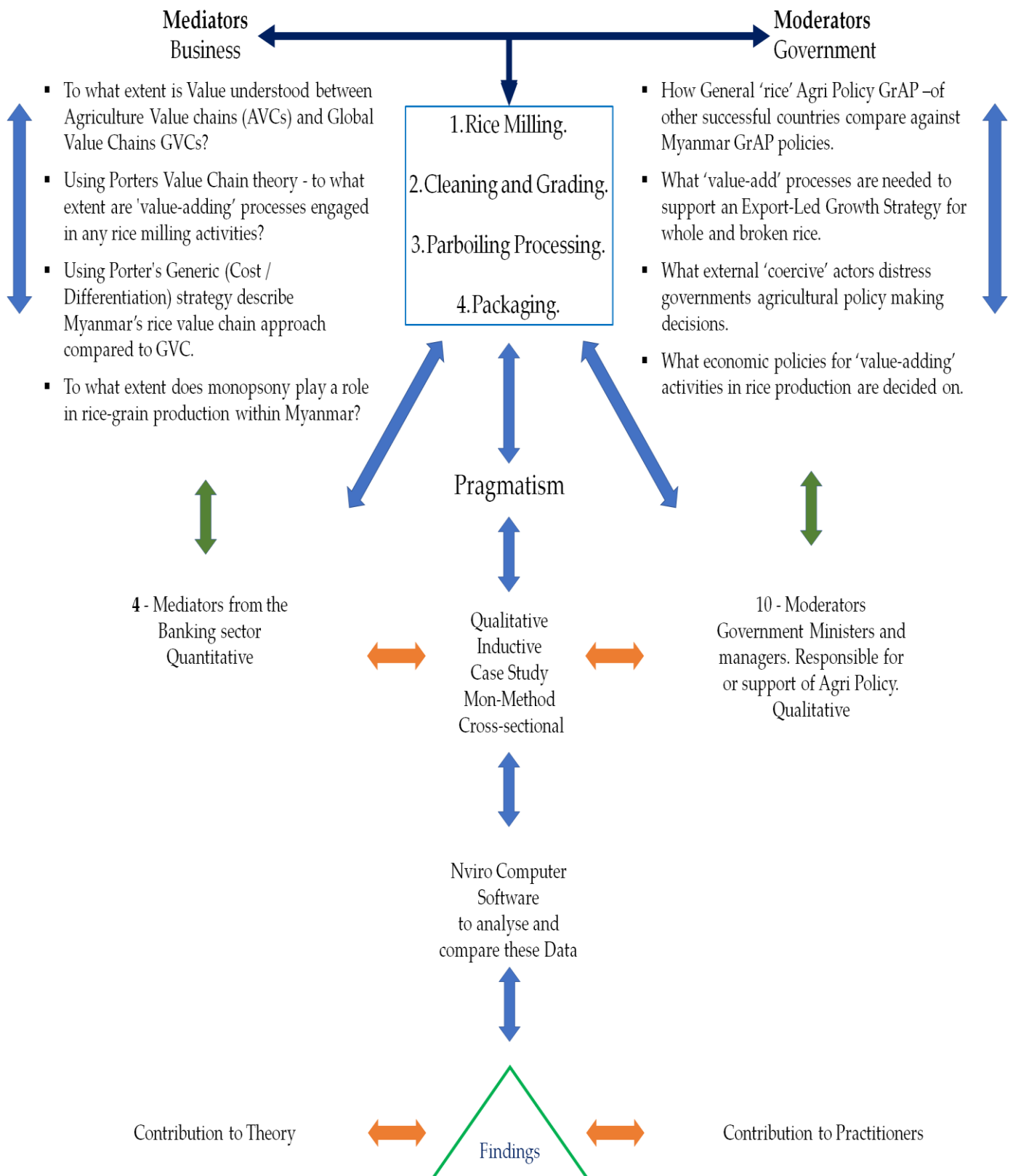


Figure 1. 2 Research aim and expected contribution to knowledge

1. 6. Methodological Considerations

Specific methodological approaches and in-depth literature reviews will be adopted to accomplish the aim as well as the objectives:

1. To clearly define the meaning of 'value and value-adding' within Global Value Chains.
2. To investigate GVC and how value-adding activities create added-value within processes.
3. Interview selected Government officials and others that have responsibility or decision-making authority on planning or initiatives for rice agricultural programmes within Ayeyarwady Delta, Myanmar.
4. Interview Bank Directors and bank regional managers:
 - Identify positive and negative outcomes between the Governments agricultural policies and local agricultural business demands.
 - Discuss the current situation for agricultural businesses and how agricultural policy could increase rice millers profits.
 - Identify and discuss value-adding initiatives within local agricultural businesses.

The aims and objectives will establish a consistent qualitative enquiry of evidence, a phenomenological research philosophy supported through an inductive approach, offering consistent answer to the research questions.

Thesis Overview

Chapter 1 presents the research aim and objectives of the thesis, moreover, providing a detailed explanation and necessity for conducting such research, lastly explaining exactly how findings have contributed to the current body of knowledge.

Chapter 2 introduces a comprehensive literature review and categorises gaps in previous research studies that look at the nature of value. Exhibiting multiple concepts and perceptions to develop a conceptual framework, while asking what value is or might be, directly linking value definitions to value and added-value processes within agricultural and global supply chains.

Chapter 3 discusses and examines the most appropriate methods that the researcher should take, several methods and approaches for obtaining or acquiring data are shown, numerous theories are evaluated, where inferences and conclusions are derived.

Chapter 4 explains which research methodology; additionally, this chapter explains the benefits and investigates the constraints of each data collection method utilised in this research.

Chapter 5 summarises the empirical findings attained through each research method and the analyses of the research findings. The case study entities, along with their management structure for state, public and private, are detailed. Views, opinions, ideas, observations and individual perspectives were provided by senior government ministers, directors and supervisors; these were obtained for this research thesis and documented using semi-structured in-depth interviews.

Chapter 6 presents a critical academic review and debate on the findings of this empirical research thesis, linking literature sources throughout.

Chapter 7 Summarises the thesis findings and details the results to achieve a conclusion on the study. Moreover, the researcher has the opportunity to offer practical recommendations and suggestions based on the results of this empirical research thesis so as to determine the impact of moderators and mediators on the Rice Value Chain within the Ayeyarwady Delta

Chapter Two

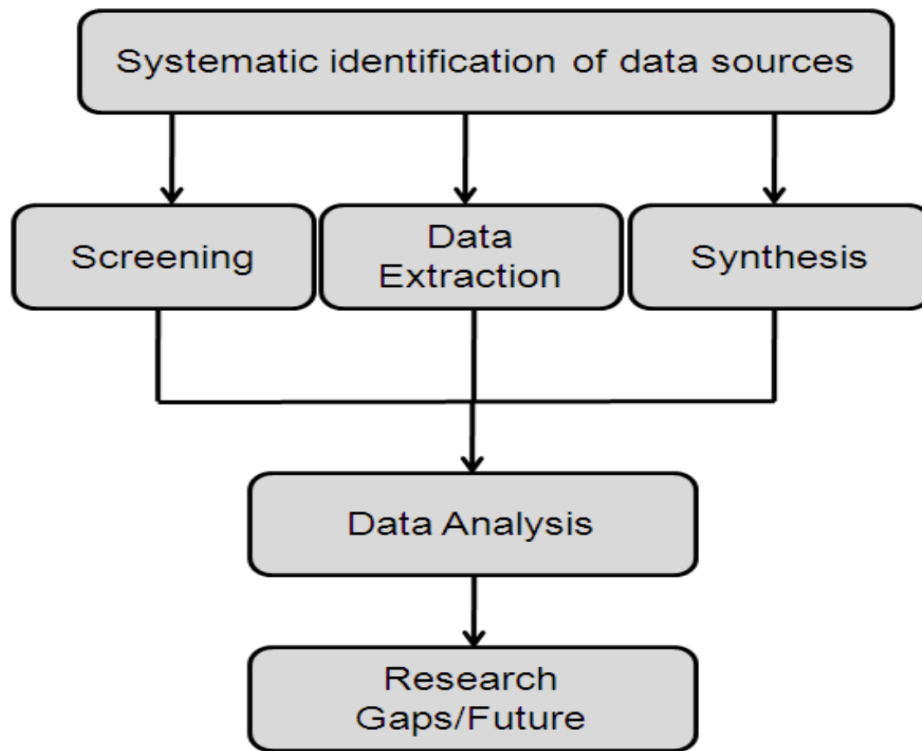
Literature Review

2.1 Introduction

The researcher performed a scoping literature analysis with the aim of mapping the literature towards the proposed research area. This is described as research synthesis providing opportunities to recognize key theories and ideas or understanding what is known already, taking a critical analysis approach to ultimately finding gaps in the research (Jesson et al., 2011).

(Tranfield et al., 2003) shown in Figure 1. 3 explains a six-stage approach which assists in guiding the researcher to ensure thoroughness and find relevant results. Having completed an MSc in supply chain researching rice and supply chains in Myanmar there were specific journals which were initially screened and shortlisted as shown in table 2. 1 and many more displayed under the appendix. A methodical exploration on the existing state of the body of knowledge of value and supply chain literature was performed. The initial stages were to research via University of Salford library using these specific academic terms. However, Google scholar and CORE were identified as being beneficial in locating journals and other Open access articles materials.

However, there were numerous journal searches perform, using similar keywords were added that pointed towards rice, production, value-adding, added value, global value chain, retail, and agriculture. Engaging in a quick read of the abstract and assessing the quality of the sources assisted in selecting journals for downloading and data extraction. The process continued with critically analysing multiple amounts of information, finally synthesising, and grouping it into themes for further review and analysis. Finally, identifying gaps in operational processes and government policy driven programmes.



Systematic literature review process (adopted from Tranfield et. al., 2003)

Figure 1. 3 Six-stage approach

Table 2. 1 Scoping literature review - definitions of Supply Chain and Value Adding

Author	Context	Definition
(Aboah, Wilson, Rich & Lyne, 2019)	Supply Chain Management	Supply chain management studies focus on the downstream side of the value chain and tacitly assume an unlimited supply of raw materials.
(Alvarado-Vargas & Kelley, 2019)	Supply Chain Strategies	Distorted information from one end of a supply chain to the other can lead to tremendous inefficiencies, excessive inventory investment, poor customer service, lost revenues, misguided capacity plans, ineffective transportation, and missed production schedules.

(Arlbjørn et al., 2011)	Green Supply Chains	Innovations and viable green supply chains have been illuminated in recent literature. Closed-loop supply chains are part of green supply chain management
(Arnold & Bell, 2001)	Research and Development	Production functions to estimate the level of technical efficiency in agriculture.
(Astill et al., 2019)	Food Supply Chains	Food supply chains are complex and contain numerous stakeholders, with each performing specific roles pertaining to food production. As food supply chains become more complex, the importance of food production transparency increases.
(Attaran & Attaran, 2007)	Supply Chain Management	Collaborative planning, forecasting and replenishment (CPFR) is the most recent prolific management initiative that provides supply chain collaboration and visibility.
(Ausserhofer, Gutounig, Oppermann, Matiassek & Goldgruber, 2017)	Theoretical frameworks	Quantitative and qualitative techniques - publications, and gaps in the research caused by recurring use of particular theoretical frameworks and research designs.
(Avelar-Sosa, García-Alcaraz & Maldonado-Macías, 2019)	Supply Chain Management	Regional aspects are considered by producing firms in their decisions to gain competitiveness and have effects on the performance of their supply chains (SC).
(Ayers & Odegaard, 2017)	Supply Chain Management	Supply chains have experienced a revolution in the last 5 years. The basic supply chain mission of matching supply and demand requires new skills and organization alignment.

(Bhat & Jōudu, 2019)	Global Value Chains	Globalization and free trade policies coupled with consumers' demand for safe and high-quality foods have created pressure on various stakeholders within the agri-food supply chain.
(Boroditsky, 2001)	Language	Does the language you speak affect how you think about the world? This question is taken up in three experiments. English and Mandarin talk about time differently-- English predominantly talks about time as if it were horizontal, while Mandarin also commonly describes time as vertical.
(Brown et al., 2020)	Food Supply Chains	Reducing food loss and waste (FLW) is widely recognized as an important lever for lowering the environmental impacts of food systems.
(Chatain, 2010)	Strategic Management	The value-based approach to strategy argues that a firm's ability to capture value depends on the extent of its added value.
(Diakantoni, Escaith, Roberts & Verbeet, 2017)	Global Value Chains	Trade costs such as applied tariffs, transportation and insurance costs are amplified as they pass through the multiple production steps associated with modern supply chains.
(Drucker, 1954)	The Practice of Management	"Value-in exchange" changed to Value-in-use", as this better represents a "core transition in service-dominant logic".
(Gereffi, 1994)	Commodity Chains & Global Capitalism	Global industrialization is the result of an integrated system of production and trade.

(Gereffi, 2005)	Governance of Global Value Chains	Theoretical framework - governance patterns in global value chains. It draws on three streams of literature – transaction costs economics, production networks, technological capability, and firm-level learning.
(Gereffi, 2018)	Global Value Chains	Global Value Chains (GVCs) are now widely recognized across the social sciences, as well as amongst governments, institutional organizations, and non-governmental organizations as the key arteries through which global trade is conducted.
(Gereffi, 2019)	Global Value Chains	Global industrialization is the result of an integrated system of production and trade. Open international trade has encouraged nations to specialize in different branches of manufacturing and even in different stages of production within a specific industry.
(Given, 2008)	Social Sciences	Qualitative research is designed to explore the human elements of a given topic, where specific methods are used to examine how individuals see and experience the world.
(Grönroos, 2011)	Marketing Theory	Value co-creation in service logic an understanding of value creation and co-creation in a way that is meaningful for theoretical development and decision making in business and marketing practice.

(Higgins & Scholer, 2009)	Consumer Psychology	Value is a motivational force of attraction to or repulsion from something, and that strength of engagement contributes to value intensity independent of hedonic and other sources of value direction.
(Lee & Gereffi, 2015)	Global Value Chains	Global Value Chain (GVC) approach to understand the relationship between multinational enterprises (MNEs) and the changing patterns of global trade, investment and production
(Memedovic & Shepherd, 2009)	Poverty Reduction	Agri-food output and incomes is essential for reducing poverty in most circumstances.
(Mentzer et al., 2001)	Supply Chain Orientation	Supply chain orientation (SCO) integrates previous descriptions and further develops the structural element of SCO including the areas of organizational design, human resources, information technology, and organizational measurement.
(Oates, 2019)	Philosophy	When Aristotle faced the question of value, he was frequently inconsistent or incoherent. This situation, according to our argument, resulted from Aristotle's rejection of Plato's Theory of Ideas, a rejection which entailed a philosophical separation of Value
(Porter, 1985)	Value chain	Tool that the strategist needs in order to diagnose and enhance competitive advantage.

(Porter, 1990)	Competitive Advantage	National prosperity is created, not inherited. It does not grow out of a country's natural endowments, its labor pool, its interest rates, or its currency's value, as classical economics insists.
(Porter, 2004)	Competitive Strategy	Competitive Strategy has filled a void in management thinking. It provides an enduring foundation and grounding point on which all subsequent work can be built.
(Porter, 2012)	Corporate Social Responsibility	Companies are widely thought to be prospering at the expense of their communities. Trust in business has fallen to new lows, leading government officials to set policies that undermine competitiveness.
(Slack, Brandon-Jones & Johnston, 2013)	Supply Chain Management	Supply chain management is the management of the interconnection of organizations that relate to each other through upstream and downstream linkages between the processes that produce value to the ultimate consumer in the form of products and services.
(Staveren, 2001)	Economics as Social Theory	Develops and applies this idea to the values of economics, arguing that in the economy; freedom, justice and care are also balanced to further ends with scarce means.

2.2 Origins of Value

Is there a relationship between the grammatical term 'Value', 'Exchange' and Porters Value Chain theory within a production process or system, or are these just 'actions'? Is there a linguistic misunderstanding when we speak or use the term value? Is it possible to identify value-adding as a 'Power' or a driver of Global Value Chains? Can there be another external component such as language, that influence moderators and mediators in their decision-making processes? (Boroditsky, 2001) explains, the "*languages we speak influence the way we think*". Once you begin to think about something that is identified or categorised grammatical as a noun, at that moment the language has already started to shape your thinking process as "*grammatical gender applies to all nouns*". Whereas (Casasanto, Daniel Boroditsky, Lera Phillips, Webb et al., 2004) ask, "*Does language shape thought?*", suggesting that (Whorf, 1956) combination of "*perceiving and analysing*" did not investigate the question sufficiently enough.

Moreover (Deutscher, 2006) argues "*different languages influence our minds because of what it habitually*"; cultural norms and actions of those around us can influence a situation; which can affect all decisions made. Moreover, (Whorf, Gentner & Goldin-Meadow, 1956) point out "*each language enshrines*" its own culture.

From the time of Socrates, Plato and Aristotle, the understanding of value has had much debate that continues even today. The term value transitions, depending on how the word is employed grammatically. Examples would be as a noun; we tend to be looking at an object to consider the objects value or worth. As an adjective, suggesting the overall utility and prescribing value to it. Finally, determining why a person would engage in an activity, comparing the result to another and thereby determining value, as a verb. Understanding the grammatical use suggest how different people and academic publications may perceive value differently, value definition for economics, accounting and finance would often express and determine value grammatically as a noun.

In contrast, value explained in a marketing area or sector would change the noun to that of an adjective, pointing towards the degree of utility, that a person might conclude the practicality, usefulness and overall satisfaction observed before the moment of exchange. Nevertheless, value expressed and points towards behaviours or learning methods or structured thinking and processes, would indicate value as a verb. The academic discipline that presents examples which express an understanding for value, do so grammatically, the same can be said for buyers and sellers, business entities and Governments, clarity for a detailed understanding of value can be, and often is obscured by the methods and syntax of grammar. Looking back to understand how value is conceived and expressed, history recorded economics introduction by an ancient Greek poet called Hesiod, as far back as 750 and 650 BC. One of his poems' called *'Works and Days'* chronicles that *"labour is universal"*; the poem highlights amusing or economic *"thoughts"* (Rothbard, 1995) and encouragement towards man's *"willingness to work"*; defining this act as man's labour and toil as *"honest, the source of all good"* (Gordon, 1975). The poem, distinguished 'honest men against others who were dishonest' or *"without mastery or shame"* (Evelyn-White & Hesiod, 1914). The pain suffered by man due to these 'dishonest' aspirations and absence of morality and knowledge; on all accounts, Hesiod is drafting a conception of *"true justice"*, one that could point towards feelings or an 'ethical' direction. Nevertheless, Socrates' argues, the characteristic of an honest and dishonest man is evident, *"right and wrong lie in people's reason, not in society"* emphasising on virtue and knowledge stating *"pleasure without knowledge is worthless"*. The nature of these pleasures and their value or link to knowledge should be discussed, knowledge or a person's attitudes and *"belief"* whether true or false would pose confusion as knowledge or epistemology is *"distinctly valuable"* (O'Hear, 2010).

Whereas right and wrong are virtues, knowledge is proposed as *'truth and justice'* inasmuch as pleasure is achievable, but is 'valueless' *"inherently finite, relative, and mutable"* (Franco, 2006) challenging the original statement and suggestion that pleasure is attainable only with knowledge.

(Feldman, 2004, p.56) as one human impression of truth and justice, *"seeks its own well-being"* (Vlastos, 1971), virtues are the *"impulse of love"*, feelings and emotions (Allinson, 2005) can attain satisfaction for the soul which requires 'self-mastery'; so-called *"vital interests"* (Argyriades, 2011). Nevertheless, Socrates' understood the complexity of human nature, explaining 'value that points towards *"virtue and happiness"* these virtues of society are self-conscious a knowledge that *"derives its value from happiness"* (Reshotko, 2006), displayed as *"character- traits"* (Irwin, 1977). Whereas *"happiness derives value from the inherent properties"*; and the ability to acquire them, developing an understanding or instruments of 'value' and economic concerns that affect *"their true worth for the human soul"* as an end in itself (Rudebusch, 2002). Socrates argued *"virtue was the only human good"*, yet the Cyrenaic, rejected the idea of virtues, instead, prescribed sensations of momentary pleasures without pain as their life's goal.

"Intrinsic good is pleasure", pointing towards early forms of ethical or altruistic acceptance as a *"social obligation"*, interpreted as *"a secondary goal of moral action"*, we understand this form of pleasure as hedonism (Lampe, 2014). The avoidance of misguided behaviours', leading towards accumulating more possessions and perceiving immoral self-indulgence and pleasures, both *"right or wrong"* to attain power and wealth within the family, society or polis. Here we find value extends into a construct or 'polis', the origins of families, an embodiment of value, a *"sense of identity"* and *"unselfish intrinsic"* behaviours (Frey, 1997) enshrouded in myth and *"ancient communities"* (Yonezawa, 1991). Membership in the polis was tribal, the misunderstanding of polis reflecting contradictions between *"philosophy and politics"*, now dominated by rule and moral virtues of societal law, with virtues, dignity encapsulated within ethical values (Pozzi & Wickersham, 1991, pp. 1-2).

Plato took the position of a more inclusive and collective economic value approach for society rather than an individual one, that involved money and *"common ownership of resources"* and commodity purchasing (Schumpeter, 1994). As a whole, ethics and morality were the cornerstones of the argument, justice, and ethics intertwined producing an early formation of moral *"social-economic structures"* within society (Karayiannis, 1990).

However, Aristotle offers a much broader account for human nature, proposing that “*man by nature is a political animal*” driven by logical philosophical ideas and ethical judgments. These fundamentals for ‘morality’ combined with the needs and wants aligning to independent values and personal pleasures. Yet, the societal pressures invoke pleasures and virtues when in the company of others, especially our peers (Mulgan, 1974) encompassing both philosophical and virtues as a “*certified way of life*” (Depew, 1995). To identify the right “*logos*” or ‘reasons’ as an experience (McDowell, 2000, p. 189) suggesting virtues as ‘value ascriptions’ that defines the way “*value judgments*” are conceived and made (Svavarsdóttir, 2019). Plato argued, truth and beauty are external, separate to the individual, as “*objectivity of values*” self-determining not governed by a desire, a feeling or a sense.

The perception or belief of truth and beauty are moral values. Aristotle, however, offers further clarity for value linking the exchange component, suggesting for example, that a ‘value relationship’ in production depends on the utility or usefulness identified by the buyer. This would point to “*desirability*” an intangible element of happiness and wealth, and that money is merely an exchange element or “*instrument*” having no value in itself one which would indicate an economic measurement, that both the buyer and seller would engage and agree on. Nevertheless, (Inamura, 2015, p. 185) argues that value has no precise measurement, consisting of variability due to rarity or scarcity “*among individuals*” or when desirability becomes irrelevant (Aristotle & Jackson, 1973). Looking from both sides of the term value used during an exchange, we can assess that Aristotle’s position on exchange-value and ratios were “*labour skills*” (Phillips, 1951) used or consumed in the production of a commodity was the actual commodity or labour-commodity.

The value associated with it; the tasks that were done during the production are encapsulated within the production. The commodity does not give or provide value indicating the labour consumed or used to produce the commodity is not or does not transfer wealth to the commodity, but rather value is created because of economic market demands of the product, this can be said as '*value-creation*' due to demand suggesting that these two components are separate (Oates, 2019). (Staveren, 2001; Jowett, 2009) argues that demand governs "*utility and desires*" which creates "*satisfaction-as-pleasure*" during the final exchange (Oliver, 1989 as cited in Holbrook, 2005); rejecting Plato's arguments that "*value derives from purchasing power*" of a specific product (Aristotle. Et al., Trans, 2011).

Aristotle continues to explain notions of pleasure, as a hedonic affirmation of value, a psychological phenomenon, feelings driven by emotions that a person might pursue. Arguing the two are "*woven into the fabric of human behaviour*"; the suggestion of behaviour advocates a moral-ethical sentiment one which implies "*pleasure as good*" and as such prescribes pleasure as a '*value-judgment*' or rational choice (Broadie, 1991).

However, rational choice explained subjectively could necessitate both pleasure and ego, where pleasure is gained for the self alone, inferring pleasure to be an element of intrinsic value. Moreover, an ethical ego would introduce a sensation or element encapsulating morality and virtue, often visible or external in nature, suggesting pleasure as "*utilitarianism*", or worthy (Beaumont, 2018). Nevertheless, (Feldman, 2004, p. 44) argues pleasure "*not conscious and conscious*" reflect individual hedonic value-traits or principals, such as Aristippean intrinsic personal gratification; or conscience feelings for ethical attitudinal extrinsic desirers with giving to others. Hermes a mythical Greek God and Mercury a Romans God, both one and the same were the protector of merchants and traders, these people would roam throughout many countries trading their wears suggesting mercantilism or free trade as not a new idea and had in recorded fact has been employed for many thousands of years. Yet, before and during 1500s feudalism or the spoils of war derogated the freedoms of merchants, combined with a nations inability to trade in gold or silver, eliminating commodity chains (Hayek & Bartley, 1998).

Value, developed through new mechanisms of trade and nations during the 1500s were concentrating on building and growing the nation's finances, one such method employed was mercantilism the production and export of the same reducing the need for importing like-for-like or similar products or alternatives known today as a substitute. Such a statement can be argued during this era, or the Elizabethan period, that a concept of commodity chains was beginning to form. (Özveren 1994; Pelizzon 1994), argued the mercantile aim of exporting wheat would suggest a method or mechanism of production, transportation, shipping, and delivery to another country, for payment in bullion. Historically from around 1500s, feudalism and the social system it provided was widespread, land and agriculture were related to wealth, such principles were encouraged through royal approval and regarded as common practice (Smith, 1776). However, mercantilism changed much of the feudalistic mentality; suggesting wealth-creation is through the acquisition of gold and silver alone or the *"essence of true wealth"*. It was the promotion of commercial activities and exports of agricultural products, through the use of labour and other resources, transforming these products into finished commodities that countries would purchase, indicating value represented as a noun or financial in nature. We can argue the statement above supports the theoretical arguments of (Hopkins & Wallerstein, 1986) a global commodity chain (GCC) is *"a network of labour and production processes whose end result, is a finished commodity"*, (Porter, 1990) argues *"national prosperity is created not inherited"*. Mercantilism began to evolve, and this change was encouraged by a group of 'enlightened' men calling themselves physiocrats. Announcing agricultural wealth is found within natural law and *"wealth creation should be free from constraints"* and war (Heckscher, 1994), suggesting value as a verb for feeling this mystical natural law and pleasures.

Nevertheless, collectively, and at times the physiocrats were disapproving of specific motives, that mercantilism displayed a *"for-profit"* arrogance, it could be argued that feudalism was being replaced by a 'new' concept, identified as capitalism in the form of (GCCs) (Holton, 1985).

Mercantilism in its basic form was an agreement to serve royalty (Waligorski, 1990), the position a government would engage in “*augment state power*”; it was proposed that exports of a nation’s production would increase its wealth, influence and ultimate power (Herlitz, 1964). Such economic practices permitted special powers to be enacted and legislated through the treasury, permitting specific entities to receive financial protections against other countries that would export their products into a sovereign nation such as England. These imports could challenge or reduced the consumption or dependency of locally produced products, reducing the governments’ treasury income, on food, spicy, clothing or other exotic products from other countries (Benjamin, 1990). The overall aim of mercantilism is concerned with exporting more and importing less; and in doing so value maximisation is achieved, meaning the trade balance between two countries for imports and exports would be settled using unique precious metals commodities, known as gold or silver, and its these two commodities that would be prized for their bullion value of which a government would accumulate supporting royalty and the needs of the state through treasury demands.

The historical (GCCs) discussions above present similarities to today’s global value chains (GVCs) in that, retailers are positioned to take the place of the mercantilists. (Dallas, Ponte & Sturgeon, 2019) argue ‘power’ within these GVCs are positioned in the hands of dyads, in this case, the retailers or mercantilists, those with ultimate buying and bargaining power as they understand consumer demand or in the examples the 1500s a foreign country. The mercantilists recognise the term value as a ‘noun’, “*acting merely from a view of their own*” interest (Smith, 1776, p. 391). The producers of a particular product such as wheat might comprehend this demand or chain, but do not have direct access to it. In this case, the landowners or Lords in 1500s as they would understand value as an adjective by ensuring the workers on the land produce a healthy crop of wheat, and the Lords would wholesale the produce of wheat to a mercantilists or retailer, agreeing to their terms and conditions presented by them, unaware to the wider scope of the export chain.

(Smith, 1776, p. 32) introduces a different perspective for value initially suggesting value and labour were considered or at least identified as a standard a linear concept or development, one and the same. The explanation develops eventually linking labour to price, yet, Smith (1776) points out that labour in its original state or standard “*purchased the world*” (Robertson & Taylor, 1957) and that price was formed so as to quantify these labour standards into specific divisions of labour (Robinson & Subrick, 2020) or to assess them as individual commodities, proposing the consequences of his value theory, whereas there are three agents in the formation of price, a combination if you will and sum of exchange-value or wages exchanged for labour or works consumed in some production, profits are gained because of this exchange value, as labour is spent and rents or facilities or are land employed (Kobayashi, 2016), more commonly known as the origins of exchange-value, meaning, labour was exchanged to gain another good or service prior to the understanding of price (Smith, 1776, p.38) leading Smith to consider (Tobias & Morrison, 2019) a metaphysical dimension for value, one of perceptions or perceived value leading to the abstract or “*opinion of value*” (Parmenides Trans. 2015; Sisko & Weiss, 2015).

Nevertheless, perceived value can cause frustration as in the case of the paradox of value (Smith, 1776), a contradiction of subjective value, due to an undesirable consequence of instant wealth or potential death. Due to the wrong assumption or exchange value decided at that moment in time, the opportunity cost and decisions desired, when creating perceived value. Nonetheless, David Ricardo (Hollander, 1901) argues value in use or utility can be understood as a factor of scarcity, of which a specific element of labour is consumed to produce or generate such ‘value’. Ricardo continues to propose value in exchange is recorded as an economic expenditure, suggesting that labour value can be related to production and should be regarded as a commodity. This commodity has a market price or that which is negotiable or agreed on (Roll, 1961, p. 180, as cited in Wood, 1994).

However, value is created by prospective purchasers, the mechanisms of supply and demand and the prevailing quantities and their attributes are not a factor of labour, the labour value or expenditure' has no direct effect on such commodities that are scarce or in demand (Economics and Liberty, 2020).

Value-creation from an economic perspective and the term and theory of utility identifies satisfaction or the needs and wants of a person (Bentham, 1789) proposed utility is the "*production of benefit*" (Quinton, 1973) and can influence the supply, demand and price of a product based on accessibility and quantity, or at least the price a person would be "*willing to exchange*" until that need, or pleasure can be satisfied. Yet, utility alone and the option of choice broadens the scope of possibilities, value creation weakens as the individual needs, and wants are met. The phenomenon of choice as (Bentham, 1789) argues "*pleasure has worth or value*" and marginal utility is a calculation or balance of needs and wants (Moore, 2013); and how these will be satisfied, as needs are satisfied more decisions, opportunity and choices are considered and made, value is explained as an adjective in the concluding or decision process, however, only at the moment of exchange in the form of an agreed transaction, value transforms as a verb creates feelings for the actual exchange that took place. Yet, a hypothesis can be proposed that would offer linkage to the mercantilist ideas for exporting and the theory of comparative advantage developed by David Ricardo (Watson, 2016). Although the initial ideas indicate a link, the concept of 'developing' value through production and reducing expenditures of the same could hypothetically have encouraged what we accept today as global value chain creation. As the mechanisms for 'production and exports' were overshadowed by economic expenditure, the factor of scarcity, to product value through the demand of utility. Ricardo developed a method and explanation which would both assist in the incremental increase in exports to foreign countries, a theory that the mercantilist would support. Exporting from all countries where mercantilist operated from; while at the same time controlling and reducing operation costs and overall expenditures.

The concept as it stands would need more work, yet, essentially, we have an essential global supply chain from country to country.

(Marx's, 1867) answers the question of value, proposing that value should be expressed grammatically as a noun suggesting that value should have the properties to measure the aggregated amount of *"total labour hours"* consumed in the creation of a commodity. Further discussions would point towards value of a commodity potentially having intrinsic value to a person, Plato defined intrinsic value as *"pleasure intrinsically good and pain intrinsically bad"* (Zimmerman & Bradley, 2020; Davison, 2012). However, Socrates proposes pleasure, *"a conscious experience"* (Ionescu, 2019, p. 23); yet, (Bentham, 1789) *"enunciative principle"* relationship argues that *"ultimate motive is the maximisation of their own pleasures"* (Sprigge, 1999), yet, (Mill, 1863) being more explicit suggests that *'own happiness'* are ultimate, *"activities of pleasure"* that pleasurable experiences are *"feelings"* and *"desirable"* (Beaumont, 2018). Moreover, (Sidgwick & Singer, 2000, p. 130) asserts *"for no one can act but from a desire, or choice, or preference of his own"* (Feldman, 1997); (Harman, 1967) proposes intrinsic value as a *"desirable pleasure"*; (Hirose & Olson, 2015) argues *"intrinsic is valuable in of itself"*, while *"pleasure is about the experience"* (van der Deijl, 2018).

Initially described value, not as perceived or subjective but instead as a commodity, in as much that the mechanism to explain or measure value is directly proportionate to the number of labour hours consumed (Marx's, 1867). Value has multiple explanations, several authors point too, understanding how the term, word or statement is said, used or explained can in itself be misunderstood by both parties (Skoble, 2012). Value explained by an economist is subjective, the economic value or pricing system, or what a person might be willing to pay or exchange at any given or specific moment in time for a homogeneous product, suggesting an individual decision or a creation of value for a given product. Whereas philosophers redirect the term value towards an objective sense, the example might suggest a person should have rights under the law of the land. These statements identify intrinsic actions *"own pleasure, conscious experience, happiness, feelings, desirable, choice, preference, valuable and experience"*.

The word pleasure is mentioned multiple times, the origin of the word pleasure derives from the Greek word "*Hedonism*" and is associated to the Greek philosopher Aristippus of Cyrene who argued "*pleasure is desirable for its own sake*" (Dorandi, 2013). Yet (Marx's, 1867) theory would suggest a contradiction as the total labour hours alone as a monetary unit would and should be the deciding factor of value. Nevertheless, this action of exchange is not as simple as swapping one product for another based on total labour hours. Both parties within the exchange should find or assume that the other product 'is of a higher worth' or perceived value to them, ultimately identifying greater satisfaction or pleasure for the needs and wants from the products after the exchange.

Moreover, what is a commodity? The accumulation of labour in the production alone or is there other specifics ways to understand value, such as the physical properties of a product which offers or provides a form of satisfaction or can there be other defining measurable means for value. (Marx's, 1867) argues that value assigned to a commodity must have a human element or relationship to the commodity, initially suggesting a commodity as having two different characteristics prescribed as qualitative and quantitative. The former would indicate the physical properties of the commodity, and the latter to the volume or number or quantity of the product, or what amount exists. Looking further at the qualitative perception explained as the physical properties of a product the exchange value would only be attainable should the product properties satisfy a specific need, this desire is characterised as Use Value, meaning the product properties are limited.

However, what measurement decides the product properties and their inherent limited or unlimited use. Suggesting that value is a combination of economic elements such as total labour time would be an error, for value to be acknowledged as value, there needs to be a human element and evidence of a need, want and satisfaction. It's at this juncture that perceived value for the product properties are displayed, the human phenomenon of value creation surfaces during the exchange or as it is often called value-exchange.

Whereby the quantity of the commodity for exchange is compared to other commodities, at which time the actual price might be part of the final exchange decision. Ultimately suggesting that value is linear or a combination of Use-Value to satisfy needs and wants which leads to an eventual Exchange-Value position. Which might be explained as a purchase (Marx & Engels, 2010).

However, for a successful exchange to take place between two or more people, three certain conditions must be present. First, we can say that perceived value for the products is less before the exchange, second, the perceived value of the other product is higher to encourage the exchange; lastly, both parties must have the power or approval to contract the exchange. It can be suggested that before an exchange a monetary or price decision exercise is conducted, one where the product is described as an economic value, yet, this action suggests that price alone would or might be the deciding factor prior to or during the exchange.

(Menger, 1871) describes this process as the economic phenomenon of exchange "*incidental manifestations of these activities*", stating price is part of a much larger process. One that is measurable; this confusion develops observable economic equilibrium or "*equality of value*", yet, the characteristics of exchange demonstration the driving force for exchange is the satisfaction of the exchanging of a lower valued good or product for the perceived higher value of the other good being exchanged.

2.3 Value & Supply Chains

(Adam Smith, 1776) wrote much about value in "*The Wealth of Nations*"; yet the notion of what value is has been discussed and debated for over 2000 years being a debated focus and one that demanded much attention from Plato and Aristotle in areas of utility (Alderson, 1957; Beckman, 1957). Nevertheless, the term value is still commonly used or expressed in much of our daily lives promoted 'specifically' through marketing activities to communicate a 'message' to the consumer (Anderson and Narus 1999; Bowman and

Ambrosini 2000 and Lepak et al., 2007). However, value has numerous terms, within the financial world value is characterised as a monetary or financial instrument and is identified or described as a *“measure of worth or value”* (Narus, 1999).

(Slater 1997) explains that value is measured by the *“difference between benefits derived and sacrifices”* and or costs incurred (Sanchez-Fernandez and Iniesta-Bonillo, 2007; Sanchez-Fernandez et al., 2009). The immediate question would be, how do you define value from a grammar perspective; as a verb, it becomes useful for two or more individuals, that could be active or enabling such as a strategic transformation.

As a noun, we might suggest some activity or value stream or as an adjective value is identified and recognised by the consumer, suggesting value-creation is or has taken place within the mind of the consumer; and how value, as it is understood within supply chain management, retail supply chains and global supply chains.

Therefore, (Porter, 1985, p. 38) suggests that value is *“the amount buyers are willing to pay for what a firm provides them”*. (Thomson, 1991, p. 16) argues that value has multiple meanings such as *“market value, value-in-use, orderly or forced liquidation, residual value, investment value or book value”*.

(Brandenburger and Stuart, 1996, 2007 cited in (Chatain, 2010) argue that added, *“value and total value creation are strategic interaction”* which is used to interact and shape its organisational performance, enhancing its ability to capture value (Lippman and Rumelt, 2003; MacDonald and Ryall, 2004; Adner and Zemsky, 2006). Nevertheless (Holbrook, 1999, Vargo and Lusch, 2004, 2008) explain a language shift, finer detail or development in the definition of *“value-in exchange” changed to value-in-use*, as this better represents a *“core transition in service-dominant logic”*.

(Drucker, 1954) argues ‘value-in-use’ are the features of value-added to a process, these are promoted to the consumer to encourage them to create value for the product or service for himself or herself, leading to a purchase.

However, (Fisher 1997; Li and O'Brien 2001; Huang et al. 2005) argues that value is created through identification and linking of *"product attributes"* with the design of supply chains. (Porter, 1995, 2008) argues, value can be created through a mixture of specific and strategic vertical value chain activities, which a company engages with or performs. Yet, (Gro nroos, 2011) argues, *"value creation is defined as the customer's creation of value-in-use"* or the *"experiential perception of the value-in-use"* from the customers perspective alone. This idea or understanding of value suggests a *"benefits against sacrifices"* (Sanchez-Fernandez and Iniesta-Bonillo, 2007; Sanchez-Fernandez et al., 2009). (Woodall, 2003) argues that value is a vague perception or concept and can be misunderstood as tangible or intangible. (Gro nroos, 2008), argues that customers can appreciate value differently, value might not have a monetary element attached (Vargo et al., 2008).

Moreover, businesses have adopted the functions of value; it has identified as a *"mutually accepted and reciprocated"* strategic instrument (Gro nroos and Helle, 2010). (Drucker, 1954; Alderson, 1957 and Normann and Ramirez, 1993 cited in Gro nroos, 2011) point out; a business must understand the term value and how customers, describe and explain or understand this, as value is a key question and function when customers are deciding to make a purchase (Holbrook, 1994; Rust and Oliver and 1994; Gro nroos, 1997).

(Lanning and Michaels, 1988; Lanning, 1998 and Kambil et al.,1996) propose that value propositioning *"developed by a marketing department to promote the benefits of a product"* are viewed as the first step towards *"value creation"*. However, (Daudin et al., 2011; Foster-McGregor and Stehrer, 2013; Hummels et al., 2001; Koopman et al., 2010 and Los et al., 2015 cited in Pablo Pi ero, Martin Bruckner, Hanspeter Wieland, Eva Pongr acz & Stefan Giljum, 2019 propose that *"value is created in the form of payments for the factors of production such as labour and capital"*.

(Hopkins and Wallerstein, 1986, p. 159) suggest that supplier-led value chains through a “*network of labour and production processes*” introduce and aim to create value-add as the end result is a finished commodity’.

(Arlbjørn et al., 2011, p. 8, cited in Munksgaard, Stentoft & Paulraj, 2014) argues, organisations which deploy “*Supply chain innovation SCI*” methodologies enhance and create new “*value creation for the stakeholder*”. (Hult et al., 2004 cited in Ketchen & Hult, 2006) propose, supply value chains are driven by cultural competitiveness, shared values and beliefs which are enshrined within a strategic mindset that drives the organisation performance forward. Whereas (McPhee & Wheeler, 2006) propose adjusting the definition of value, a term that encapsulates the intangible elements which are not always expressed, such as “*reputation, innovation, and brand value*”.

2. 3. 1 An interpretation of ‘what is value.’

Table 2. 2 displays a selection of journals that offer different ideas and constructs for the term value or indeed value-adding, without a clear theoretical understanding or definition of the term value, there is the potential for conflicting views or processes used when creating value-added processes within the operation. It could be argued that both moderators and mediators should engage in a discussion to agree on the terms, value, and value-adding, and establish what are considered academically as value-adding processes within the agricultural sector.

It can be argued without establishing the term value and its construct, the agricultural sector will find it increasingly difficult to increase output of unbroken whole grain rice for both the domestic and international markets, the consequence would result in overall total value losses and income across the value supply chain.

Table 2. 2
An interpretation of value

Author	Date	Title	Keyword for Value	Grammar	Grammar topics	Study
J. Mills	1863	Utilitarianism	Happiness	Noun	Value or Worth	Philosophy
H. M. Robertson and W. L.	1957	Adam Smith's Approach to the Theory of Value	Capital	Noun	Value or Worth	Economic
Gregory Vlastos	1971	The Paradox of Socrates	Truth	Noun	Value or Worth	Philosophy
Henry Jackson	1973	The Fifth Book of the Nicomachean Ethics of	Need	Noun	Value or Worth	Philosophy
R. G. Mulgan	1974	Aristotle's Doctrine - Man a Political Animal	Moral	Noun	Value or Worth	Political ethics
Barry Gordon	1975	Economic analysis before Adam Smith	Honest	Verb	Behaviours	Hesiod
Terence Irwin	1977	Plato's moral theory	Character	Noun	Value or Worth	Ethics
Easterling & Knox	1985	Works and Days - classical literature	Justice	Verb	Behaviours	Philosophy
Nico H. Frijda1 & Batja	1986	The Analysis of Emotions	Valence	Noun	Value or Worth	Psychotherapy
William Frankena	1988	Virtue Ethics	Pleasant	Adjective	Utility	Philosophy
Martha C. Nussbaum	1988	Non-Relative Virtues	Virtue	Noun	Value or Worth	Philosophy
Anastassios D. Karayiannis	1990	Platonic Ethico-Economic Structure of Society	Justice	Noun	Value or Worth	Economic
Sarah Broadie	1991	Ethics with Aristotle	Choice	Noun	Value or Worth	Microeconomics
S. Yonezawa	1991	Socrates' two concepts of the polis	Communities	Noun	Value or Worth	Philosophy
S. A. Drakopoulos	1991	Values and economic theory	Ego	Noun	Value or Worth	Microeconomics
Pozzi & Wickersham	1991	Myth and the Polis	Myth	Noun	Value or Worth	Philosophy
Gee, J.M. Alec	1994	The Case of Hedonism	Choice	Noun	Value or Worth	Microeconomics
Joseph Schumpeter	1994	Graeco-Roman Economics	Ownership	Noun	Value or Worth	Economic
David J. Depew	1995	Humans - Other Political Animals Aristotle's	Virtues	Noun	Value or Worth	Humanity
Murray N. Rothbard	1995	Economic Thought Before Adam Smith	Thought	Verb	Behaviours	Hesiod
Bruno S. Frey	1997	Not just for the money	Intrinsic	Adjective	Utility	Economics
George Rudebush	1999	Socrates, Pleasure, and Value	Virtues	Noun	Value or Worth	Humanity
T. Sprigge	1999	Ethical Hedonism	Maximization	Verb	Behaviours	Philosophy
Zimmerman & Bradley	2000	Plato	Good	Noun	Value or Worth	Philosophy
John Henry McDowell	2000	Mind, value and reality	Reason	Noun	Value or Worth	Philosophy
Peter L. Phillips	2000	Politics of Aristotle	Exchange	Verb	Behaviours	Philosophy
Irene van Staveren	2001	The values of economics	Satisfy	Verb	Behaviours	Philosophy
George Rudebusch	2002	Socrates, pleasure, and value	Worth	Noun	Value or Worth	Values
Fred Feldman	2004	Pleasure and the good life	Pleasure	Noun	Value or Worth	Ethics
Edwin W. Younkins	2005	Aristotle and Economics	Useful	Adjective	Utility	Economics
Robert Allinson	2005	The Birth of Spiritual Economics	Impulse	Noun	Value or Worth	Ethics
Morris B Holbrook	2005	Consumer value	Satisfaction	Noun	Value or Worth	Philosophy
N. Reshotko	2006	Socratic virtue	Conscious	Adjective	Utility	Economics
H.G. Evelyn-White	2006	Theogony and The Shield of Heracles	Justice	Verb	Behaviours	Philosophy
Alison Hills	2008	Value, Reason and Hedonism	Teleology	Noun	Value or Worth	Sociology
Higgins and Scholer	2009	Science and art of the value creation process	Outcomes	Noun	Value or Worth	Psychology
Benjamin Jowett	2009	Politics by Aristotle	Satisfaction	Noun	Value or Worth	Philosophy
Matthew Pianalto	2009	Against the Intrinsic Value of Pleasure	Well-being	Noun	Value or Worth	Philosophy
Constantine Vamvacas	2009	The Founders of Western Thought	Heterogeneity	Noun	Value or Worth	Philosophy
Jennifer Bair	2009	Global Commodity Chains a Genealogy	Social production	Adjective	Utility	Political
Timothy E. Taylor	2010	Does Pleasure Have Intrinsic Value	Instrumental	Adjective	Utility	Philosophy
T. van Berkel	2010	Socrates and the Value of Friendship	Valuable	Adjective	Utility	Economics
Tazuko van Berkel	2010	Pricing the Invaluable	Reciprocity	Noun	Value or Worth	Philosophy
Mayhew and Anaximenes	2011	Problems, Volume I: Books 1-19	Instrument	Noun	Value or Worth	Economic
Demetrios Argyriades	2011	Value and Virtue in Public Administration	Interests	Noun	Value or Worth	Ethics
T. Dorandi	2013	Lives of eminent philosophers	Choice	Noun	Value or Worth	Economics
Kurt Lampe	2014	The birth of hedonism	Sensations	Noun	Value or Worth	Philosophy
Iwao Hirose & Jonas Olson	2015	The Oxford handbook of value theory	Pleasure	Noun	Value or Worth	Ethics
Kazutaka Inamura	2015	Justice Aristotle's political philosophy	Estimate	Verb	Behaviours	Philosophy
John Sisko and Yale Weiss	2015	Fourth Alternative Interpreting Parmenides	Being	Noun	Value or Worth	Philosophy
Andrew Alwood	2017	The Value of Heterogeneous Pleasures	Pleasantness	Adjective	Utility	Philosophy
Beaumont	2018	Hedonism	Desirable	Adjective	Utility	Economics
Tim Beaumont	2018	Hedonism and the Value of Pleasure	Worthy	Adjective	Utility	Philosophy
W. van der Deijl	2018	Is pleasure all that is good about experience	Experience	Noun	Value or Worth	Ethics
Sigrún Svavarsdóttir	2019	Value ascriptions	Ascriptions	Noun	Value or Worth	Philosophy
Whitney Jennings Oates	2019	Aristotle and the problem of value	Exchange	Verb	Behaviours	Philosophy
Tobias and Morrison	2019	The Hypothetical Species	Metaphysics	Noun	Value or Worth	Humanities
James M. Ambury	2020	Socrates	Self-sufficiency	Adjective	Utility	Reflections
Inoua & Vernon Smith	2020	Adam Smith's Theory of Value	Price	Noun	Value or Worth	Economics
Robinson and Subrick	2020	Adam Smith Labor Theory of Value	Labour	Noun	Value or Worth	Economic

2.4 Poverty and Exports Synergies

The agricultural population dynamic suggests that approximately 40 million Myanmar people earn roughly UD\$ 1. Per day. However, increasing exports requires improvements in the design and development of multiple value-adding technologies and value-adding streams during the production process. Nevertheless, increasing, high-quality whole-grain rice is unintentionally broken during the pre (sun-bleaching) and production stages producing low-grade broken rice, primarily due to inadequate production methods or inefficient milling facilities. The Government are directly promoting the National Food & Security Legislation act. Moreover, the Government aims to increase the overall agricultural investments programmes specifically on lease-free land, suggesting local residence can sign to lease those lands identified as lease-free. The potential to grow crops, thereby increasing overall agricultural productions can improve exports of whole-grain and broken rice overall, improving overall GDP revenues.

Nevertheless, the Government is accused of developing policy initiatives which favour increasing the production of low-quality broken rice alone, to ensure there is sufficient and affordable rice available for local consumption throughout the country, reducing the production of export quality rice.

In recent times the Government has announced continued developments or 'new initiative' as part of the Export-Led Growth Policy, which is part of the overall National Export Strategy (NES) (World Bank, 2016; International Trade Centre, 2015, LIFT, 2017; World Bank, 2020). Combine this with having seventy per cent of the population or forty-million unskilled workers in the agricultural sector (Cho, Kyaw & Khaing, 2019).

It might be shown that an export-led strategy (Kim, Kyophilavong, Nozaki & Charoenrat, 2020) involves winning market-share; by appealing to cost-conscious or price-sensitive customers. Value-adding on scale would presumably assist with increasing Government exports of rice products, and in doing so bring much needed foreign currency back to the country. Technology acquisitions and foreign direct investment (FDI) could be encouraged to enter into Myanmar business sectors.

This is achieved by having the lowest prices in the target market segment, or at least the lowest price to value ratio (price compared to what customers receive). The mechanisms for such a strategy or *“lowest price and a high return on investment”*, require Government investment. Again, this research can identify how ‘value’ is perceived by the Government moderators and what value driven policies and investments could the business sector consider for the agricultural sector. Possibly pointing to how the Government is dealing with the substantial labour problems and poverty, which will be discussed later. Here it would be a consideration that the Governments position on value touches multiple parts of the economy.

2.5 Why developing countries need a NARS

(Mahul & Stutley, 2010) points out that for the last few years developing countries or those identified as *“middle-and low-income countries”* have been working towards introducing *“commercial agricultural insurance programs”* or CAIP. That usually entails *“technical and operational assistance”* programmes provided by either the *“international community or the World Bank”*.

(Reyes, Agbon, Mina & Gloria, 2020) points out, agricultural insurance is *“perceived by policymakers as a safety net”*, this, however, is incorrect (Mahul and Stutley, 2010) explain a commercial agricultural insurance programme *are methodical and intricate and rely upon substantive amounts of quantitative data*. One aspect of CAIP is the requirement that each country develops an agricultural *“framework of its own”* which provides benefits to the agrarian population as a whole.

The most commonly adopted ‘starting’ template is the National Agricultural Research System (NARS) (Arnold & Bell, 2001; World Bank, 2012). This should incorporate a *“checks & balance system”*, transparent analytical reviews, training and development for the population living in rural areas; and finally have public support (DU Yan-kun, 2006).

However, (O'Connor, Bord & Fisher, 1998) argue that such programme garnishes diminutive public support as governments decide in advance all long-term government aims. (Psacharopoulos & Nguyen, 1997) argues agriculture in developing countries employs considerable amounts of untrained labour, the majority of which are living in poverty, access to machinery is not always available, and much of the work is completed using animals. However, the potential of a *"two-track strategy to reduce poverty"* which incorporates a linkage of both *"public and private sectors"* can introduce a win-win for both moderators and mediators. First, to *"reduce poverty"*, which is a challenge and the responsibility of any government; and second by creating activities that foster economic development such as local investment, an efficient financial system, public spending initiatives, training and skills development programmes, land reform and FDI; thereby *"facilitating employment"* opportunities that can deliver economic value to a country.

(Hoang & Nguyen, 2020) points out in the last two decades Vietnam has transformed from a *"food-insufficient nation to the world's second-largest rice exporter"*. The Vietnam government adopted the NARS template transforming and adopting the principles into viable programmes and activities, bring multiple actors and institutions together, creating the agricultural framework known as the Vietnam Academy of Agricultural Sciences (VAAS). The government took the position to invest heavily into training and development partnerships, multiple public authorities throughout Vietnam and intensified funding to agricultural universities who had the mandate to develop practical programs for rice cultivation, water management and correct chemical introduction on crops (Pick, Marie-Vivien, and Bui Kim 2017).

This adoption and deployment of methodologies' increased productivity and overall food quality to satisfy international standards; replacing traditional and costly outdated methods, which produced inadequate agricultural yields and consumed limited available resources (Durand and Fournier 2017).

2.6 (NARS) Agricultural frameworks

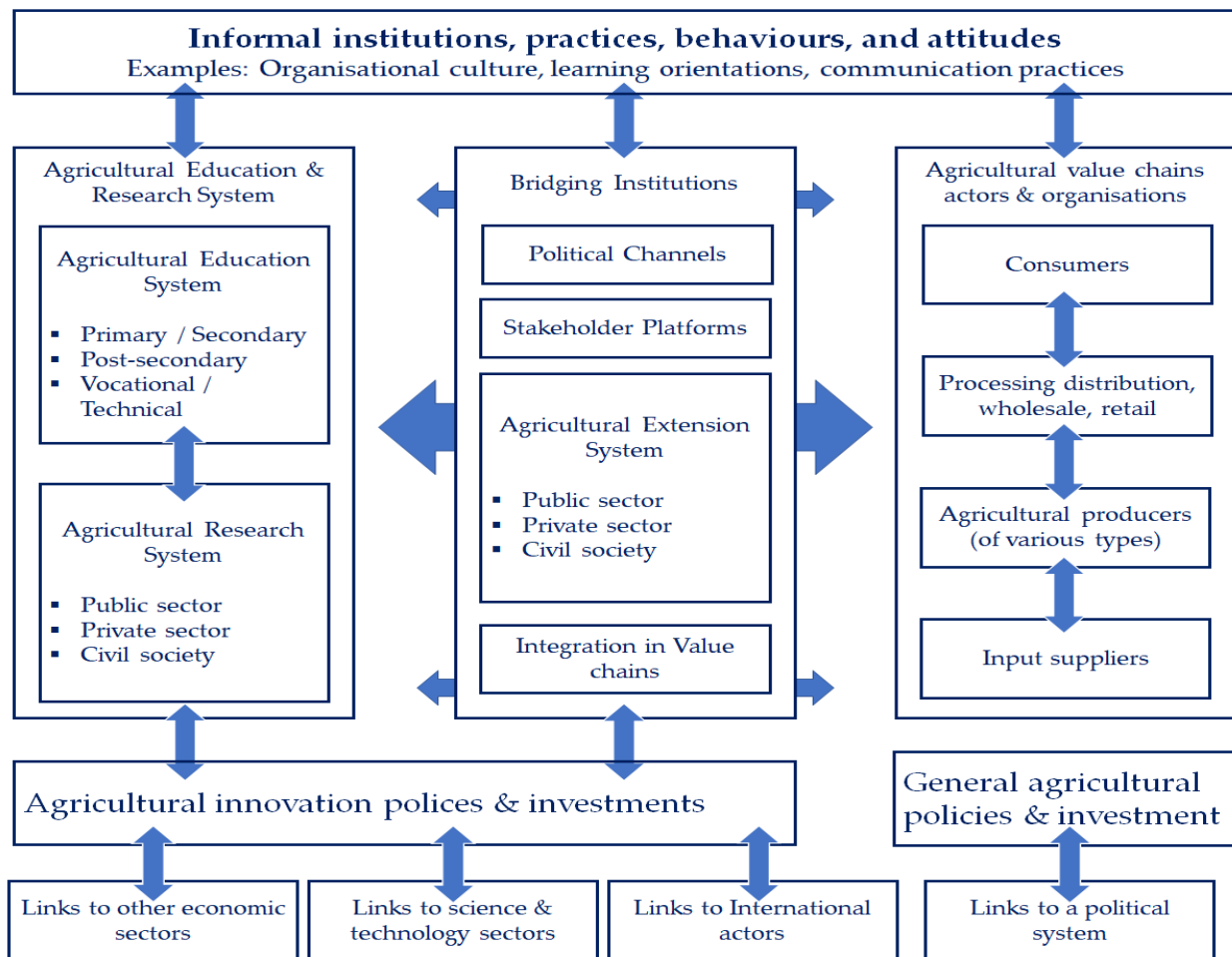
(Víctor Villalobos, Miguel García & Felipe Ávila, 2017) see figure 2. 1 explain, after the second world war, it was clear that food production needed a considerable boost. Farming practices and scientific know-how was limited at best. The 1960s brought about the introduction of fertilisers, a nitrogen product which stimulated crop growth and increased yields at the same time. Governments saw this as an immediate way of solving food shortages, as well as offering the potential of increasing agricultural exports.

For this new direction to be a success, multiple governments, the private sector, scientific agencies, NGOs, stakeholders and universities were consulted, with the aim of innovating the agricultural sector through better operational processes, risk controls and elimination, food quality became a core target as well as knowledge sharing throughout the agricultural industry as a whole. This became known as the “*national agricultural research systems*” (NARS) framework (Arnold & Bell, 2001; World Bank, 2012; Sonnino and Ruane, 2013, p 36; FAO, 2017; European Commission, 2019) and remained a key pillar within the agri-sector. In contrast, all actors and institutions involved are identified as individual elements, each country must create their own agricultural systems supported by government, academia and the private sector. This is done using the National Agricultural Innovation System (NAIS) shown as figure 2. 1 below, that brings all actors and institutions and the private sector together. However, (Sonnino and Ruane, 2013) explain (NAIS) has brought mixed problems for many stakeholders.

Both (NARS) and (NAIS) are identified as having a symbiotic relationship that attempts to deliver value across all sectors involved within the programmes. Common problems are often found within different organisational structures and management styles.

A Working model for National Agricultural Innovation System

A Conceptual Diagram of a National Agricultural Innovation System



Source: Authors; adapted from Arnold and Bell 2001

Figure 2. 1
(NAIS) Elements of a (NARS) framework (Arnold & Bell (2001))

The Myanmar government, through legislation development mentioned above, has assembled a new department, called the National Agricultural Research Council (NARC), which has adopted the standard and principles of NARS. Individual actors that includes direct linkage to many agricultural universities and other external financial institutions and the private sector who are involved with, for example, seed and fertiliser production and agricultural training programmes.

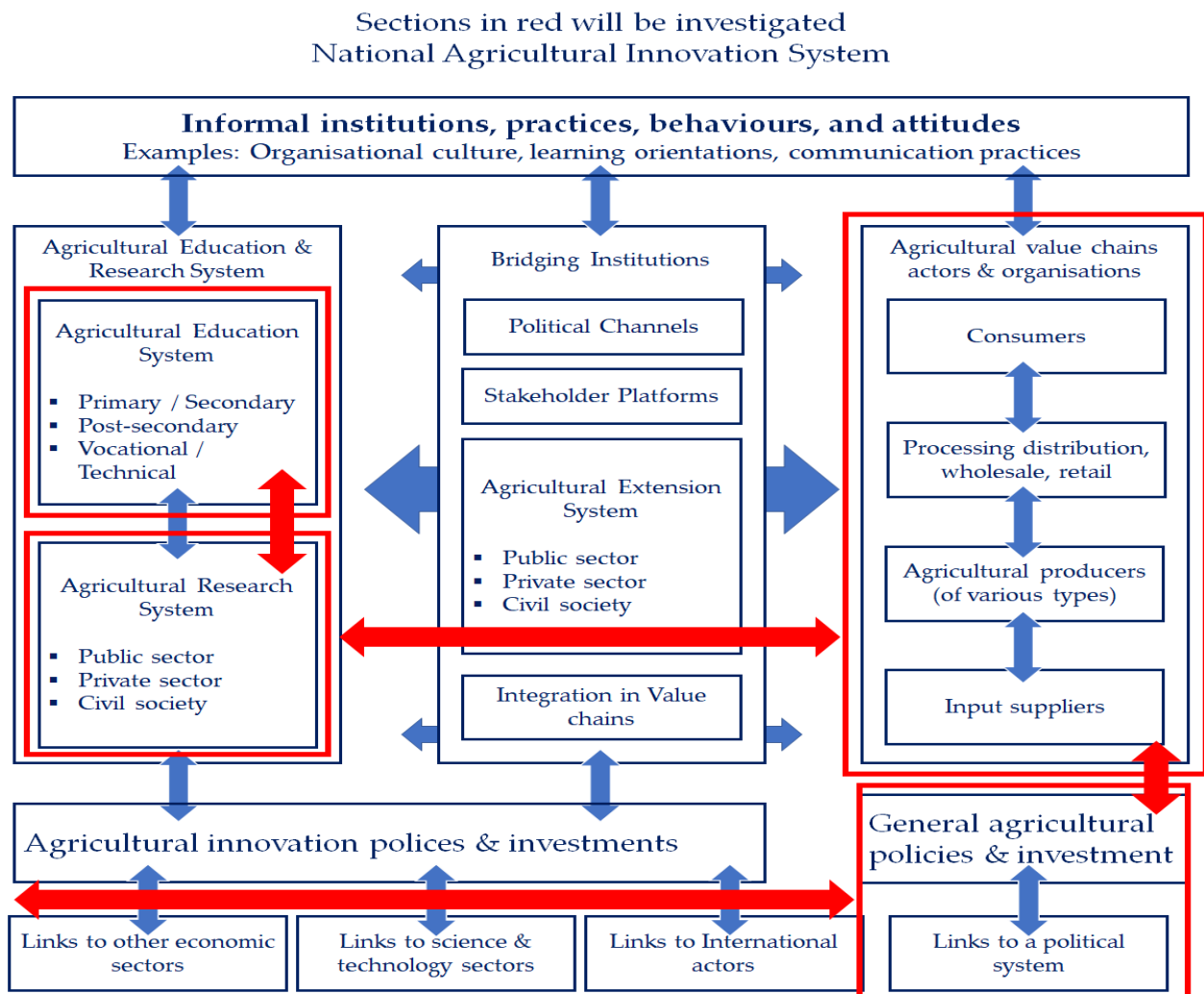
The governments' initial ideas are to continue to release *land certificates* to farmers (Sourn, Mao & Nut, 2019) to capture rainwater during the monsoon months and grow paddy rice on areas not considered as 'active-land' all year round. However, the method for growing paddy rice brings with it a secondary environmental problem, *Oryza sativa* rice "increases the *atmospheric carbon dioxide*" (De Costa, Weerakoon, Chinthaka, Herath & Abeywardena, 2007). (Mackill et al., 2010) explains that *Oryza sativa* CO₂ concentration "increases with air temperature" (IRRI, 1998) and (Moya, Ziska, Namuco & Olszyk, 1998) point out that "*national agricultural research systems*" (NARS) (Sonnino and Ruane, 2013) do not account for this problem.

In underdeveloped countries, a (NARS) tends to concentrate on poverty reductions by increasing agricultural production of multiple crops. Whereas (Kumar et al., 2019) argues, paddy rice production is not difficult to begin, the construction of a flooded parcel of arable land of approximately 20cm high wall around the areas, filled with water is all that is required, the rain will do the rest during the monsoon season.

(Alexandratos, Bruinsma, 2012) explains, the agricultural sector is looked at as having 'investment' characteristics, and the supply chains are scrutinised to identify which processes offer value-adding and non-value-adding activities; all this new know-how must be shared with all farmers and supported through education, training and research, so as to enhance the dendritic clusters of the Agriculture Food Value Chains (AFVC) and value chain networks (VCN) (Radanielson et al., 2019).

With the need to produce food for the populous of Myanmar that is heading towards 60 million people, the government (modulator) will look at deploying resources to achieve this aim. Whereas businesses (mediator) consider where opportunities are for their investment, combining these multiple ideas, methods, and resources suggest potential 'overlapping'.

The research will concentrate on identifying specifics shown on the (NAIS) framework shown in figure 2. 2, highlighted in red boxed below. This approach provides an opportunity to test and qualify standard links to the proposed or current NAIC framework in use today compared to another more successful country such as Vietnam and Cambodia.



Source: Authors; adapted from Arnold and Bell 2001

Figure 2. 2
A Review of the (NAIS) Elements

2.7 Porters Diamond – link to NARS

(Porter, 1990) explains, *“national prosperity is created, not inherited”*; a nation comprises of its combined *“labour pool”* and the natural resources under its government control. Today we understand a new dynamic, globalism, which places nations in economic competition with each other. Each one looking inward to enhance their competitive success and often arrange or have direct access to Global Value Chains, (Waverman, 1995) explains this is achieved by *“continuous productivity improvements through the upgrading of skills and goods sold”*. (Ruta, 2017) points out Nations engage in *“preferential trade agreements”* in an attempt to *“integrate into global value chains”*; moreover, what dynamics are used to identify GVC partners?

A Nation might wish to engage in or develop a *“deeper agreement”* or long-term strategic policy, as Nations are generally *“not in a position to constantly renegotiate”* contracts terms. However, can it be said that these deep contracts can have a negative effect on global value chains going forward, as the value proposition would be static, this might be advantageous from a monopolistic position; yet, Global Trade Agreements often have policies against such activities. (Amador & Cabral, 2014) argues Global value chains (GVCs) are considered as *“vertically fragmented across different countries”*; often, such activities provide a *“perception that globalisation”* targets countries that are identified or labelled as *“low-income”*.

(Arndt, 1998) describes comparative advantage in these countries as *“final products are a function of internal endowments”*. GVCs consider the whole chain of events when considering the final product for the consumer. The ideas that a *“deep agreement”* would or might be considered within a competitive agricultural free market setting is probably highly unlikely.

Furthermore, *“trade-in tasks”* or specific jobs that are done by *“specialised processing firms”* are often found exclusively in Global Value Chain. Costs for these firms are specific charges or fees associated with a *“fraction of value-added created at each consecutive stage”* (Grossman & Rossi-Hansberg, 2008). (Assche & Gangnes, 2020) argue, international organisations have separated *“value chain tasks and moved them to different countries”*, the effect of such decisions has been recognised as having a negative impact on *“low-skilled workers”*. Table 2. 3 shows by implementing Porters Diamond model, it is possible to ‘hypothesise’ for now where Myanmar’s agricultural position is in relation to the model.

Further debate and adjustments are possible after the interviews are completed. Porters Diamond model points out four specific broad determinants or ‘Factored conditions’ which comprises of two subsets.

The first is distinguished as ‘advanced and basic’ factors that comprise of ‘advanced’ knowledge capital, skilled labour’ and infrastructure. Whereas the ‘basic’ factor suggests; natural resources, ‘unskilled labour force’ economic in nature, production and manufacturing being semi-finished for reexport to another country.

The second subset explains specialised and generalised factors for the former or those *“narrowly skilled personnel”* that poses, for example, a uniqueness in some way to design or create verses the latter of a skilled workforce to suit all manner of industries.

The second determinant ‘Demand conditions’ points inwards or towards *“home demand”*, how organisations might perceive customer needs and wants or could be influenced by a consensus of consumer demand as a norm, not easily understood or known in time by a foreign competitor. Those customers that are identified as ‘sophisticated’ enough, who drive product development and overall sales growth to total saturation point, forcing companies to ‘innovate’ and expand market share and enter into new ‘potential’ international markets.

ASEAN as a starting point, Thailand could be the first choice for exports. Moving on to the third determinant 'related and supporting industries', the concept of foreign direct investment or joint-venture partnerships located within a nation that can offer or provide *"advantages in downstream industries"* (Porter, 2012). Within agriculture, this can be the seed production sector or fertiliser production that both employ technologies and qualify raw ingredients at cost-effective and competitive prices. This can encourage the development of other 'supporting' industries such as logistics to transfer or deliver these products to local customers.

The fourth and last determinant is firm strategy structure and rivalry. A nation-state has the right to arrange and decree how organisations should follow the laws and regulations to ensure the organisation is transparent and not in any way violating society's social norms.

The Diamond model explains four main determinants; however, two additional determinants exist; these two can affect anyone of the main determinants either positively or negatively. These are identified as *"governmental policy and chance conditions"*. The former would suggest current regulation and policy incentives or programmes; however, in some case, there can be deregulation activities or the opening up of a specific sector to FDI.

Here we find the potential for gains and losses if the government do not address or consider how 'policies' help or hinder mediators across the four main determinants namely *"Factored, Demand conditions, Related and supporting industries and Firm strategy structure and rivalry"*.

Looking at some policy initiatives in Myanmar one that remains 'problematic' is the FDI-for rice Milling, MIC still objects to foreign ownership of rice mills, yet without investment into this sector broken rice production will continue to grow. The example here would be how Cambodia opened up FDI in 2010 specifically for rice mill investment, over the last ten years, Cambodia has risen to the number 3 position as a global rice producer.

Looking at the latter ‘chance’ or those identified as “*outside the control of organisations or the government*”.

Table 2. 3
Myanmar at a glance using Porters Diamond Theory

Myanmar at a Glance using Porters Diamond Theory								Contributing Authors
Four Determinants	Subsets	Examples	Myanmar	Government Policy	Chance Conditions	NARS. Increase Food Production	NARC. 'NAIS' Value-Adding	Competitive Advantage
				Influencers		Alleviate Poverty	Increase Economic Output	
Factored conditions		Large Young Population	Oil / Gas / Mining / Gemstones	X				X
	Advanced	Skilled	Tends to Migrate / Other Countries	X		X	X	
	Basic	Unskilled	Agricultural / Manufacturing	X			X	
	Specialised	Unique Skills	Mining / Gemstones / Jewellery	X				
	Generalised	Trained Workforce	Academics / Medicine / Hotel	X		X	X	
Demand conditions	Home Demand		Rice	X				X
			Organic Rice Products		X			
			Broken Rice	X				X
			Retailers / Supermarkets				X	
Related and Supporting Industries		Foreign Direct Investment	Construction	X				
		Joint-venture	Manufacturing	X				
		Seed & Fertilizer Production	Government	X		X	X	
		Joint-venture	Seed & Fertilizer Retail		X	X	X	
Firm Strategy Structure and Rivalry		Rice Milling	Local business				X	
		Protectionism	Government	X		X	X	X
		Exports	MAPCO		X	X	X	X
		Imports	Retailers / Supermarkets				X	
		Training & Development	Government / Private	X	X		X	
		Buddhist Culture	Feminine / Collective	X				

List assembled by author, contribution authors and dates shown

(Malang & Holzinger, 2020)
(Hoang & Nguyen, 2020)
(He et al., 2020)
(Reyes, Aybon, Mina & Gloria, 2020)
(Radanielson et al., 2019)
(Kumar et al., 2019)
(WTO, 2019)
(LIFT & UNOPS, 2018)
(FAO, 2017)
(Pick, Marie-Vivien, and Bui Kim 2017)
(Durand and Fournier 2017)
(Victor Villalobos, Miguel Garcia & Felipe Avila, 2017)
(Malyan et al., 2016)
(Sornino and Ruane, 2013)
(Alexandros, Brainsma, 2012)
(World Bank, 2012)
(Mahul & Stutley, 2010)
(World Bank, 2012)
(Siddiqi, 2012)
(Hedger, 2011)
(Mackill et al., 2010)
(De Costa, Weerakoon, Chinthaka, Herath & Abeywardena, 2007)
(DU Yan-kun, 2006)
(Babu, Li, Froking, Nayak & Aditya, 2006)
(Yap & Lam, 2004)
(Pathak et al., 2003)
(Arnold & Bell (2001)
(IRRI, 1998)
(Moya, Ziska, Nazmco & Olszyk, 1998)
(Psacharopoulos & Nguyen, 1997)

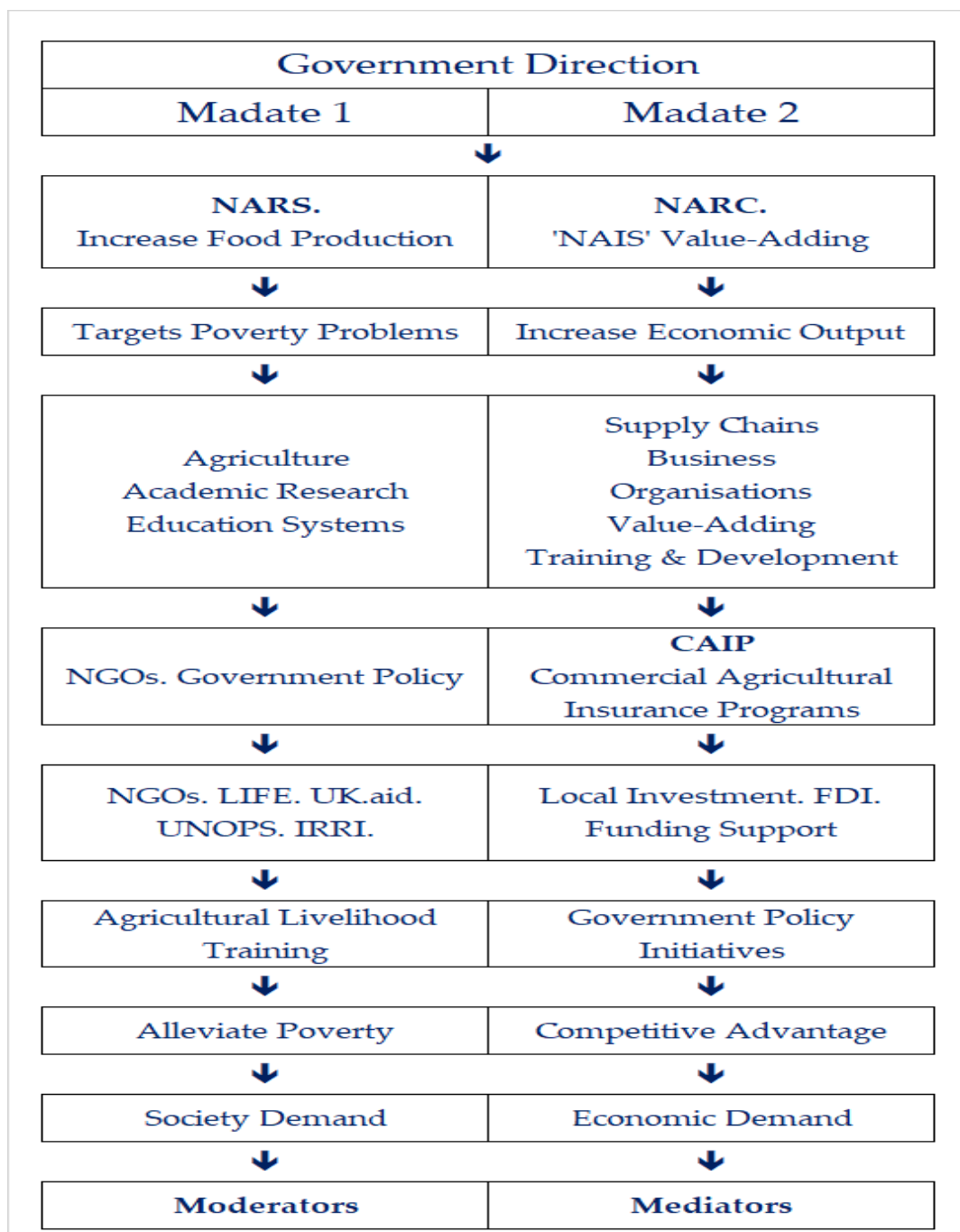
As mentioned earlier, there is one major drawback between a (NARS) and the development of a (NAIS) framework the former concentrates on poverty eradication, the latter on value-creation. An example to compare both (NARS) and (NAIS) might be:

The landmass of Myanmar is almost three times the size of the UK. With a combination of available land and the population size of 40 million that are identified as a low-skilled workforce. A (NARS) framework or ‘hypothesises’ can be, to eradicate poverty there should be a rapid expansion of wholegrain and broken rice production for local consumption, the remaining rice can be for export. Let us look at how that might work. Both long-grain and short-grain white rice are cooked in the same way, we can suggest that ‘short-grain’ can also be identified as ‘broken’ rice.

However, a (NAIS) framework might propose a very different idea to maximise ‘value-added’ growth potential and to avoid the poverty issue but looking towards ‘employing’ a portion of the low-skilled workforce to plant and maintain the growth of the rice.

2.8 NARS & NARC Comparison

Table 2. 4
Mandate Pathway Processes



2.9 Supply Chain Management SCM

This thesis will identify when industry and business as a whole embraced the development of new knowledge that suggested how better performance, improvement in organisational capabilities and potential added-value could be achieved. The discussion throughout this thesis will be to understand what is value within supply chain management SCM, its origins and development before its current title was established, the dynamic interlinking activities of SCM and how its global reach has infiltrated multiple organisations such as Government, the private sector and NGO's and agencies, finally how SCM continues to evolve into the digital realm. Many of the projects discussed here are enshrined in the history books; other projects are still in use today as many have been updated with more recent technological improvement. (Cox, 1999, Thorelli, 1986, Croom, 1998 and Ho, Au & Newton, 2002) suggest that the term supply chain management (SCM) is a recent development or activity which business engages in; however, in reality, supply chains and management have been used or employed for thousands of years, just misunderstood.

Consider how historical monuments and building that still stand today such as the pyramids of Giza located in Egypt, Castles located throughout Europe, (Christopher, 2011), infrastructure in many countries such as road networks, railways line networks which date back a few hundred years. Shipping networks, which connected many different continents and countries for a thousand years; these supply lines, or networks were often used during times of war. Yet, the overhanging questions remain how were these projects constructed, what mechanisms and processes were employed; what communication systems were used, where did the raw materials come from, who organised the logistics around these programmes, what costs were involved. Ultimately, who were the people in charge of the overall management and delivery of these projects to the final owner or customer?

Such projects, networks and controls can indicate that some type or form of SCM or control was employed or present during these activities and conquests, if so what kind? (Wallerstein, 1974, 1979; 1980; 1989) proposed that from as early as the sixteenth century, "*Europe solved the crisis of feudalism by creating a capitalist world-economy*", understood today as World-systems theory. (Stern, 1988) argues that this era was the beginning of the Colonial period where supply lines were better known as Global Commodity Chains (GCC), where a new type of control was employed. (Wallerstein, 1974) considered "*feudalism as servile labour under capitalism*" whereas (Hopkins and Wallerstein, 1994) suggests that a commodity is the result of a combination of labour that is used within an operation or system or process that produces a finished product.

These activities in today's language might be better understood as being part of a supply chain of sorts. (Slack, Brandon-Jones & Johnston, 2013); "*driven by the needs of their business*" (Stevens, 1989) focussing from their unique perspective and construct and not across a supplier supply chain or network.

(Jones and Riley, 1985) adopt the sentiment by suggesting that SCM is responsible for the complete "*flow of materials from suppliers through end-users*". (Langley and Holcomb, 1992) suggest that logistics alone will not define what supply chain management is, the objective of SCM should "*synchronise all supply chain activities*". However, (Porter, 1980), proposed that organisations needed to shift their focus towards a *generic* strategy; choosing which one of the three would best suit them, understanding that combining multiple strategies would entail what he describes as the third dimension or value-chain.

The competitive advantage concept became a driving force for the pursuit of market share (Allio & Randall, 2010), and yet (Porter, 2008) language pointed not to SCM but rather to "*Value Chain Management*" VCM; or that which is comprehensive to the organisation alone. Moreover, this value chain or its set of "*primary activities*" Porter (2008) was deliberated some forty years earlier when (Forrester, 1958, p154) used keywords and headings in his thesis, which discussed basic analytic techniques.

Terms such as: "*supply pipeline*", "*supply line*" "*commodity supply systems*" and "*distribution systems*" (Forrester, 1958, p322; Harland, 1996, p. 64; Berry, Towill and Wadsley, 1994, p. 20) highlighting ground-breaking management techniques, systems and procedures which takes advantage of both "*intercompany and external supplier relationship, within its markets*" are dynamic factors and should be developed (La Londe and Masters, 1994, p. 38; Christopher, 2005, p. 17; Ellram, 1991, p. 13).

(Christiansen, 2015) argue SCM is a management technique controlling all inputs, supplies or on-stock inventories, thus maintaining minimal '*stock*' levels. (Bowersox and Closs, 1996; Giannakis & Croom, 2004, cited in Mentzer et al., 2001) argued that, an organisation must develop its "*integrated behaviour*" to be competitive (Chen and Paulraj, 2004, p 119); Chopra & Meindl, 2016, pp. 16-19; Ogrinja, 2013. (Lambert et al., 1998) argue that SCM is an "*integrated process that adds value for suppliers, customers and other stakeholders*".

Still, the continued development for organisational "*competitive advantage*" (Aitken, 1998; Rayport & Sviokla, 1994; Chandrashekar & Schary, 1999); Slack, Brandon-Jones & Johnston, 2013; Porter, 2005) required improvements to an organisational relationship, ultimately inspiring the development of these specific departments. (Cox, 1997, 1999, p. 211) argues that practitioners must be operationally effective, understanding leverage and structural properties, ownership and strategic controls of supply chains. (Harland, 1995) reasons, there is "*inconsistency from several emerging bodies of knowledge*" for the term or meaning of SCM (Kozlenkova, Hult, Lund, Mena & Kekec, 2015; Ho et al., 2002; Croxton et al., 2001; Mentzer et al., 2001, p. 18). Croom et al., 2000), proposed an initial six (6) specific areas or fields for research "*strategic management, relationships and partnerships, logistics, best practices, marketing organisational behaviour*".

Researchers identified SCM as a 'comprehensive' business area or field of study directing the research towards operations or the movement, flow or direction of a product and materials.

While opposing research suggest SCM as a management philosophy and process, supported through individualised, cooperative and organisational efforts, concentrating on control, measurable processes and structured activities, procurement, customer relationships management, product development, demand management and order fulfilment (Esper, Clifford Defee & Mentzer, 2010).

(Power, 2005) argues that SCM should be viewed as a "*strategic element*" of the organisations, which must strive for a competitive advantage, found by creating an inter-dependant and visible network of relationships, linked to shared processes and technology providing a mutual destiny throughout the supply chain network (Power, 2005; Harrison, 2015; Bozarth & Handfield, 2016; Ayers & Odegaard, 2017; Soonhong, Zacharia, and, Smith, 2019).

(Mentzer et al., 2001) offers a broader view for value suggesting that supply chain management provides a "*holistic and philosophical*" approach which encompasses a unique set of objectives for creating customer value-adding activities.

2. 10 Supply Chain Management and its Historical Developments

Supply chain management was no longer a function used within the organisation alone but was responsible for a "*complex sequence of activities aiming at value capture and competitiveness*" (Rodrigue, 2017). Integrating (Cooper et al., 1997) information and networking departments such as finance, warehousing and in-bound logistics, then purchasing to production and material demand flows, finally out-bound logistics distribution functions to customers (Rodrigue, Comtois & Slack, 2017). However, (Choi & Wu, 2009) propose that in general, a supply chain consists of a buyer and a supplier comprising of two nodes or dyads, these nodes have the ability to affect each other.

Their primary objectives are cost savings and management through to delivery, providing limited concern for value-adding, *"dyads are usually isolated from a larger supply chain"*. However, a supply chain 'network' can consist of both nodes and links thereby forming a buyer-supplier relationship or triad, these triad-links *"captures the basic essence of a network"* focusing on activities that create the most value for customers and shareholders (National Research Council, 2000). Engaging in a 'network of arrangements', thereby identifying and resolving inadequacies extends far *"beyond the organisational level"* (Dubois, 2009).

Over the last fifty years, there have been five (5) evolutionary stages or improvements which is shown in figure 2. 3 below, when we discuss supply chain management. The 1960s (Forrester, 1958) can be characterised as the 'integration' period (Rodrigue, Comtois & Slack, 2017), bring once acceptable but fragmented (Bechtel & Jayaram, 1997; Lambert & Pohlen, 2001; Mentzer et al., 2001) tasks closer together, eliminating waste so to improve productivity. Nevertheless, the 1970s and 1980s brought a consolidation of both materials-management and physical distribution (Sambasivan, Nandan & Abidin Mohamed, 2009), for some time, these two tasks offered similar functions to the organisation.

During this era, opportunities within logistics for SCS' specialisation' grew, fragmenting the supply chain even more and bringing in multiple vendors, which focused on key activities. (Bardi & Tracey, 1991) argues, *"labour cost saving, specialisation, asset reduction, inadequate assets, transportation cost reduction, and expanding workload"* which were identified as *"exploiting logistics to gain a competitive advantage"* (Watson and Pitt, 1989, cited in Bardi & Tracey, 1991).

Logistic, transportation brokerage organisations would arrange shipments of all kinds, warehouse managements that catered to in-bound storage and inventory and -out-bound shipments that are linked to non-asset-based carriers, these functions and activities were usually outside of the client's control except for drop-off and receiving of the shipped products.

Value-adding was identified by a negotiated 'fixed' price that was measurable by the clients. The early 1990s, technology played a vital role offering Supply Chain Solutions ScS and deployed an (ASP) model or a 'shared' ticket from client out-bound right through to client in-bound, services such as these were the 'genesis' of shipment tracking, clumsy at first but soon becoming goliaths or (SaaS) within the logistics world today.

These companies were very capable of reducing their own operating cost capturing their own 'value', (Moreira., Rauscher., Ferreira & Zimmermann, 2018) explains that co-sharing of shipments with other SCS improving overall competencies and performance through strategic selection of different '*best-in-class*' SCS partners. The 1990s offered a new and dynamic change throughout the organisation; computerisation was rapidly making its way into every section and department. The new term 'globalisation', and with it came the demand for a single management perspective one that warranted "*functional integration and the emergence of logistics*" (Rodrigue, Comtois & Slack, 2017).

Notwithstanding, these new business opportunities took time to materialise, communication technologies were assisting with the integration process and supply chain management was slowly being adopted, but remained a function (Lee, Padmanabhan & Whang, 2004) within many organisations only. Understanding all aspects of 'value' (Gentry and Vellenga, 1996; Johnson, Marsh & Tyndall, 1998; Mentzer et al., 2001; Porter, 2011) became the mantra of the twenty-first century. Organisations began to look inwards, where was it possible to increase "*core competencies*" (Porter, 2011) reduce waste of any kind. Departments' managers quickly understood that 'integration' was a decisive factor for competitive advantage, non-core operations and activities were viewed as negatives for competitive advantage and needed to be either sold or outsourced to organisations locally or internationally (Cottrill, 1997 cited in Power, 2005), opening the doors for SCM to extend across all borders and beyond the organisation.

The Evolution of Supply Chain Management



Figure 2. 3
Evolutionary of Supply Chain Management

2. 10. 2 **Supply Chain Orientation then Management**

(Mentzer et al., 2001) proposes that, perhaps a potential direction of clarity or a better understanding SCM is to segment the literature into two specific areas, this thesis has discussed multiple perspectives for SCM starting in the mid-1950s and onwards. Clearly, what we see are *“two concepts or theories with one term”* (Mentzer et al., 2001) to explain SCM. First, the introduction of a new term for SCM philosophy (SCO) *“Supply Chain Orientation”* (Mentzer et al., 2001, p. 11), suggesting a recognised and integrated, inclusive management system, which synchronises coordination of strategic and tactical activities for all distribution flows across the supply network. Supply Chain Management can now be appropriately defined as, the *“implementation of this orientation”* and its alignment to numerous organisations across the supply chain network (Mentzer et al., 2001, p. 11).

(Handfield and Nichols, 2003, Giunipero, 2004, Cited in, Hult, Ketchen, Adams & Mena, 2008) argue, the increasing competition will be between *“chain vs. chain”* and *“supply chain orientation”* will grow over time.

In general, an organisation is inclusive, meaning that all decision and processes made and agreed to support the organisation as a whole. Those organisations that are part of or within an SC of sorts, which do not warrant greater ‘strategic’ visibility or control, will continue to engage within a dyad or triad SC or supply chain network. Then, we might adopt the definition for Supply Chain Management which is *“the implementation of a supply chain orientation across suppliers and customers”* (Mentzer et al., 2001, p, 11), implying that SCO is a management philosophy. However, (Shin, Collier & Wilson, 1999) argue that as a Supply Management (SM) or Supply Management Orientation (SMO) philosophy is a dyadic supply relationship where the buyer and supplier interact collaborate and coordinates between each other.

2. 10. 3 **Supply Chain Management**

(Mentzer et al., 2001, p, 18) defines SCM as “*systemic coordination of multiple strategic tactics*”; notwithstanding the many interpretations of supply chain management, this thesis endorses (Slack, Brandon-Jones & Johnston, 2013, p. 406) SCM consists of the “*interconnection of organizations that produces value*” in the form of products and services suggesting SCM has a “*central objective to satisfy the end customer*” each actor in the SC should engage with value-adding activities, to gain a higher portion of the final end-customer’s money. (Cooper and Ellram, 1993) argue, the “*food industry plays an important role*”, from harvesting right through to final consumption, along each step of a food supply chain FSC, there are independent actors that provide services such as transportation and storage (Fritz and Schiefer, 2008), which, are combined together through a system of management (Zhong, Xu & Wang, 2017) referred to as “*food supply chain management*” FSCM.

All actors within the FS chains are competing on comparative advantage, specific or certain food products, which might be available in one or various geographical locations. Yet this global mechanism has brought concerns regarding the ‘distance’ between producers and consumers (Monteiro et al., 2010). Due to these demands in seasonal fresh food products (Hobbs & Young, 2000; Van der Vorst, Beulens, De Wit, & Van Beek, 1998 cited in Georgiadis, Vlachos & Iakovou, 2005) point out, FS chains must engage with “*frequent deliveries*” to the consumers preferred buying locations. Ensuring there are dedicated and efficient modes of transportation, dry and chilled storage facilities within the reach of the retailers and or consumers. (Bloom and Hinrichs, 2011; Brown, 2003; Brown et al., 2009; Darby et al., 2008; Schneider and Francis, 2005 and Kneafsey et al., 2008) argue, consumer perceptions for locally grown produce and buying preference continues to drive advancement within the FS chains. Over the last few years, there has been a dramatic shift in consumer mind-set, reductions with food packaging and the use of plastic within the FS chains.

Large retail hypermarkets are downsizing their footprint of many of their out-of-town location for new and smaller footprint locations that are very accessible to the public. This shift away from large retail food locations to multiple small and distributed locations introduces innovation demands for FSCM, (Naim and Gosling, 2011) explains these as *“urban and peri-urban local fresh food supply chains”* (FFSCs).

FSCM functions should concentrate on quality throughout the total FSC (Robinson and Malhotra, 2005; Yang and Wei, 2013 cited in Song, Turson, Ganguly & Yu, 2017), not just to reply on the actual management or flows of food products, or value-adding through the SC itself, and understand that ‘time’ is a major factor increasing the quantities of perishables (Georgiadis et al., 2005). Introducing ‘quality’ (Robinson and Malhotra, 2005, p. 319) as a major or key driver into SCM suggesting to add a new terminology or title, *“adding qualify”* as a driver suggests that food supply quality management FSQM shall preserve all SCM functions, however, in addition, will employ a *“mitigating intra- and inter-organizational risk management strategy”* (Juttner, 2005).

(Doug, 2013; Leat and Revoredo-Giha, 2013; Whipple et al., 2009) argue that “quality management” and “risk management” are extensively researched within SCM, especially for FS chains, due to both ‘local’ and ‘global’ food-related scandals (Roosen, 2003; Grunert, 2005). Moreover, (Ambler-Edwards et al., 2009 cited in Leat & Revoredo-Giha, 2013) discuss, FSCM will need to (Leat & Revoredo-Giha, 2013) inter alia and evolve even further, through a combination of four characteristics *“resilience, sustainability, competitiveness and expectations”*. This combination concentrates the quality into an overall holistic ‘ethos’ or ideology which all FSC actors must embrace to ensure they each meet consumer expectations.

2. 11 Rice Supply Chain

(Zhou, Xia & He, 2019) argues, quality and value are interrelated, processed rice grain at the retail stage presented in packaging for a specific price can indicate a level of quality achieved by the producers (Ling & Wahab, 2020). (Bhullar and Gruissem 2013) argues "*rice quality can mean different things to different people*" taste could also be a factor. Understanding the production methods employed during this stage might not be known or understood, as quality, which is subjective and consists of opinions of those involved within the rice supply chain as a whole. The question would be how to determine this quality that a consumer can relate too. (Myers et al., 2010) argues worldwide food policies concerns are a constant discussion, the developing and develop countries are all "*interlinked to food safety*" and the demand for controls, (McCorriston, 2014) such controls are enforced coercively and often through 'buyer-driven' foreign investments.

Consolidations are enforced and implemented through "*vertical coordination*" within the supply chain signifying disadvantages "*unreasonable burdens*" (Konig, 2009) that demand "*lower price-cost margins*" for growers and producers (Kaditi, 2012). (Low, Bass, Thilmany & Castillo, 2020) argue retailers downstream take the position of ensuring quality is achieved, conforming to global standards, to meet desires and requirements that reflect the demands of their consumers shoppers on food safety and health. (Sturgeon, 2008) explains Global buyers actively create, shape, coordinate and develop Global Commodity Chains (GCCs) that consist of two different types of driven lead firms: "*buyers and producers*" (Gereffi, 1994), these are both networks of "*labour that processes agriculture into a commodity*" (Hopkins and Wallerstein, 1974, 1986, 1994) such as rice, (GCCs) reduce costs throughout the chain (Gereffi, 2005) costs reductions and savings that are difficult to achieve when dealing with "*individual small-scale producers*".

Global commodity chains (GCCs) are tasked to identify and engage with supply chains consisting of companies and farmers in multiple countries; that should perform a specific set of activities. Such as correct planting, harvesting, production of the rice grain, sorting, packaging, labelling and logistics at "*just the right time*" to the country and retail store. In the case of developing countries, many of these activities are provided on an individual base or operation, evidence suggests at times these functions are poorly performed, leaving GCCs to side-step or avoid purchasing from these countries. (Roekl et al., 2002) explains, global commodity chains (GCCs) deploy methods and mechanisms which are responsive to consumers' needs and wants. Combined with "*efficient logistics management*" and distribution channels have revolutionised agricultural food value chains, turning them from a "*production push to a market pull orientation*".

However, GCCs offer access for producers to specific markets (Singh & Singla, 2011) argues (GCCs) establish important links between MNCs and local, often small producers. Nevertheless, supply chains must be developed to both improve overall standards and output that meet international food quality and safety demands. (Dolan & Humphrey, 2000) point out that retailers or 'large' MNCs supermarket chains established "*value creation*" (O'Keefe, 2007) mechanisms with (GCCs); to develop "*differentiation strategies*" as populations urbanise evidence suggests consumer eating habits have changed.

Supermarkets have created new marketing channels for different (Burch and Lawrence 2005) branded "*ready to eat' or cook meals*", directly linking to primary producers. (Gereffi, Humphrey & Sturgeon, 2005) explains (GVCs) can adapt to multiple supermarkets marketing strategies, from working with producers and growers to grow certain crops and reduce overall costs of production of a variety of quality, fresh and healthy food products. Promoting "*customer satisfaction and confidence in the purchase*" suggesting that (GCCs) have transited into Global Value Chains (GVCs) as the term commodity is changed to value so as to identify value-add processes throughout each stage of the GVC (Lee & Gereffi, 2015).

(Quilley and Beynon, 2002) explain the "*power-shift*" relationship between the international buyers expressed as the "*emergence of a monopsony in distribution*". The power-shift was due to an oversupply of food processing companies, trying to compete and gain access to the retail supermarket generic food and private label brands (Hendrickson, Heffernan, Howard and Heffernan, 2001). However, accessing this highly "*concentrated buyers-driven market*" provided 'global buyers' the ability to "*exercise enormous purchasing power*" and other coercive controls over them (Burch & Lawrence, 2005).

(Bosona & Gebresenbet, 2013) point out, (GVCs) demand upstream and downstream agricultural supply chains are collaborative; which deploy "*food traceability components*" such as "*tracking and tracing*" and are supported with time-dated documentation (Schwägele, 2005), (Olsen & Aschan, 2010) across an integrated logistical process. To ensure consumers food protection and food safety standards are achieved at a certain cost (Karlson et al., 2013). However, (Nguyen-Van-Hung et al., 2018) argues that Governments often engage with scientists and export development specialists to advance postharvest technical activities and systems. Such as methods of harvesting and moisture contents and controls, threshing procedures and correct methods for cleaning, drying and final storage, all of which are understood as 'best practices procedures'.

(FAO, 2013) explains "*improper drying of wet paddy contributes about 3–5% of paddy rice losses*". These activities should be organised before the actual milling process, to reduce losses and achieve a healthy and safe food product, by enforcing food-safe regulations within the supply chain. Often retail packaging will display certain certification and verification of quality. The intention and ultimate aim of the government is to gain entry into certain (GVCs) as the potential economic benefits can be substantial to the country. Evidence suggested below indicates a broad range of industry data that can be argued as being possible 'drivers' for moderators and mediators to enter into rice production.

2. 11. 1 Historic Retail Growth and Retail Potential

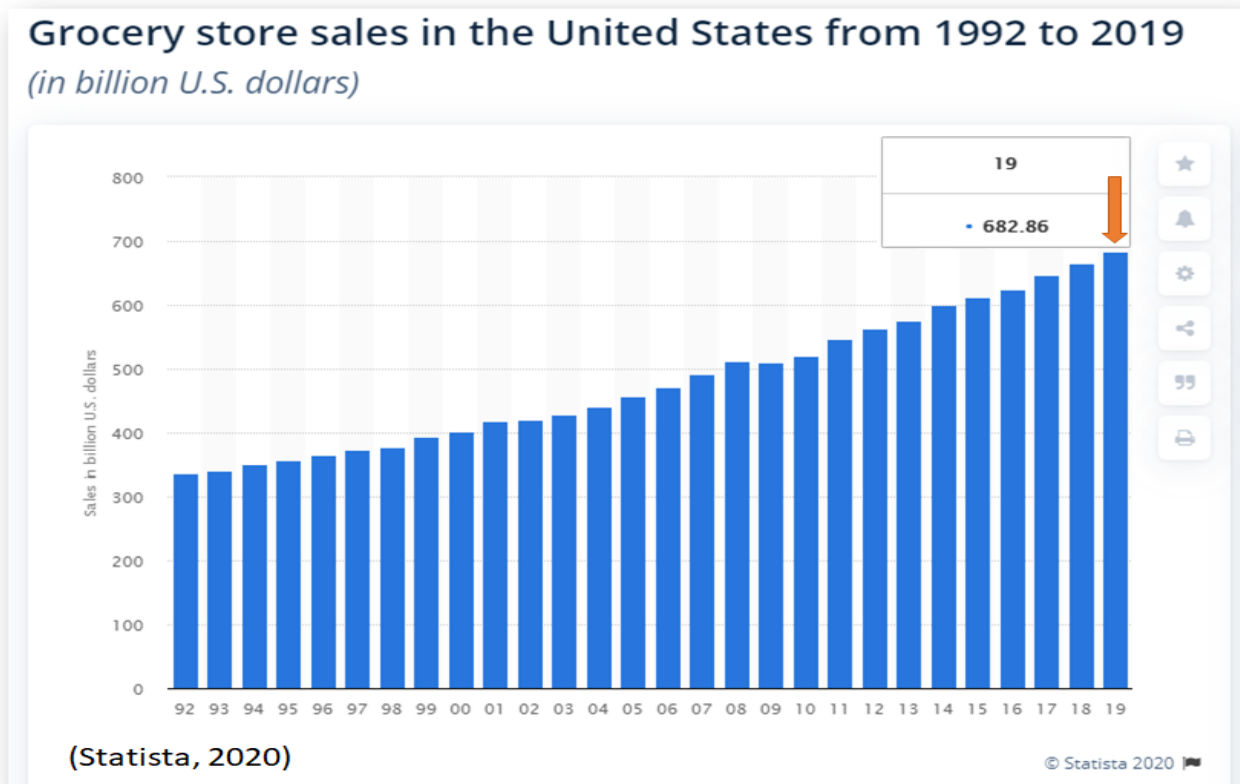
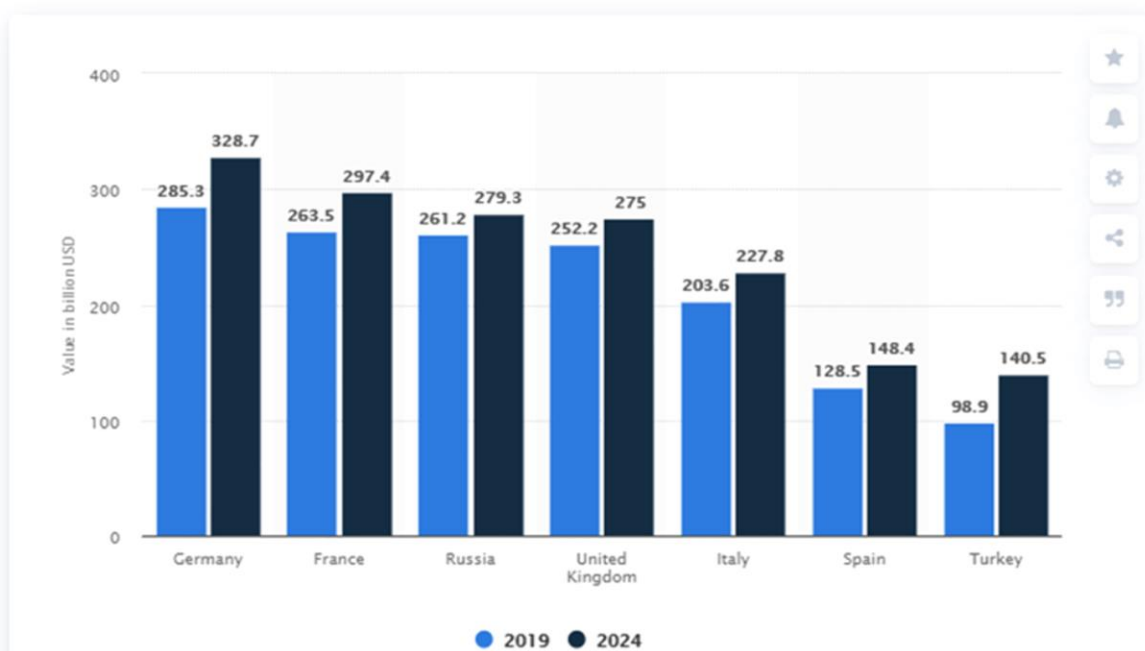


Figure 2. 4
Historic Retail Growth and Retail Potential

Figure 2. 4 shows a historical retail sales growth pattern suggesting a constant development of grocery ‘retailers’ within the US market, it is possible to extrapolate forward and suggest a continued ‘positive’ growth will continue.

Forecast of grocery market value in leading countries in Europe in 2019 and 2024 (in billion USD)



(Statista, 2020)

© Statista 2020

Figure 2. 5
European Retailers Market Value 2019-2024

Figure 2. 5 shows the Market value for European retailers suggesting continued positive growth by 2024.

2. 11. 2 Global Retail Growth Predictions

Table 2. 5
Global Retail Growth Predictions

Retail Global market growth 2019-2024 - US\$bn				
Country	2019	2024 US\$bn	Total change 2019-2024	CAGR 2019- 2024
USA	1,520.40	1,750.10	15.10%	2.90%
China	1,429.20	1,888.80	32.20%	5.70%
India	531.3	781.1	47.00%	8.00%
Japan	468.1	558.7	19.30%	3.60%
Brazil	324.3	404.9	24.80%	4.50%
Germany	285.3	328.7	15.20%	2.90%
France	263.5	297.4	12.90%	2.50%
Russia	261.2	279.3	6.90%	1.30%
United Kingdom	252.2	275	9.10%	1.70%
Mexico	211.8	265.9	25.60%	4.70%
Italy	203.6	227.8	11.80%	2.30%
Indonesia	139.7	191	36.70%	6.50%
Spain	128.5	148.4	15.50%	2.90%
Nigeria	128.1	205.6	60.50%	9.90%
Canada	102.7	128.6	25.30%	4.60%
Turkey	98.9	140.5	42.10%	7.30%
South Korea	97.6	120	22.90%	4.20%
Australia	92.4	107.5	16.40%	3.10%
Pakistan	85.7	111.6	30.10%	5.40%
Thailand	76.1	101.1	32.90%	5.80%

(IGD research, 2020)

Table 2. 5 explains historic 2019 and potential market growth over the coming years within the retail sector. However, the same table 2. 6 is adjusted for total changes 2024 places seven rice consuming countries at the top part of the table. Except for Nigeria, the next six are from Asia. There is an argument that can suggest that numbers such as these can be a driving force for a government to grow food, specifically rice. Furthermore, another argument that suggests GVC expansion into these countries to maximise output, improve quality and reduce production costs.

2. 11. 3 Top Seven Retailing ‘Rice Consuming’ Countries Growth 2024

Table 2. 6

Global Retail Market Growth 2019-2024 - US\$bn

Retail Global market growth 2019-2024 - US\$bn				
Country	2019	2024 US\$bn	Total change 2019-2024	CAGR 2019-2024
Nigeria	128.1	205.6	60.50%	9.90%
India	531.3	781.1	47.00%	8.00%
Turkey	98.9	140.5	42.10%	7.30%
Indonesia	139.7	191	36.70%	6.50%
Thailand	76.1	101.1	32.90%	5.80%
China	1,429.20	1,888.80	32.20%	5.70%
Pakistan	85.7	111.6	30.10%	5.40%
Mexico	211.8	265.9	25.60%	4.70%
Canada	102.7	128.6	25.30%	4.60%
Brazil	324.3	404.9	24.80%	4.50%
South Korea	97.6	120	22.90%	4.20%
Japan	468.1	558.7	19.30%	3.60%
Australia	92.4	107.5	16.40%	3.10%
Spain	128.5	148.4	15.50%	2.90%
Germany	285.3	328.7	15.20%	2.90%
USA	1,520.40	1,750.10	15.10%	2.90%
France	263.5	297.4	12.90%	2.50%
Italy	203.6	227.8	11.80%	2.30%
United Kingdom	252.2	275	9.10%	1.70%
Russia	261.2	279.3	6.90%	1.30%

(Khatri Das, 2020) argues FDI partnerships and “*retail infrastructure*” continue to grow, the introduction of ‘technology’ drives “*efficient and cost-effective*” retail operations. According to Global market forecasts (2019 – 2024) table 2. 6, suggests growth of 24%, in retail sales or an additional “*US\$2.2 trillion*” in sales by 2024. The claim suggests that “*Asia will account for nearly 50%*”, ‘highlighted above’ countries such as China, India, Pakistan, Philippines, Vietnam and Indonesia are only a few examples.

2. 11. 4 UK Retail Market share

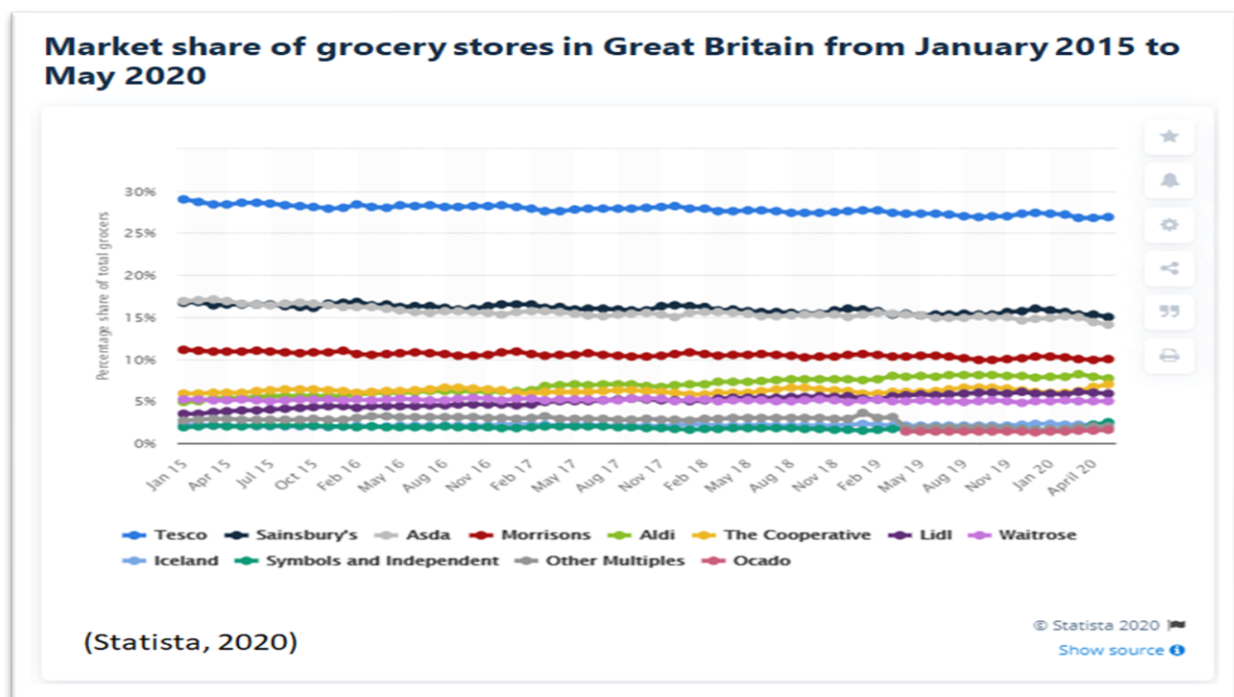


Figure 2. 6
Great Britain Grocery Market Share 2015

Figure 2. 6 indicates market share for a selected list of retailers, the lead firm identified in 'blue' is Tesco, which has a historical constant of being the UK supermarket leader. However, (Moulds, 2015) argues that Tesco wields its 'buyer-power' to the extent of not "complying with a government-backed industry code" designed to protect manufacturers. Nevertheless, suppliers and producers were not ready to speak out openly for fear of retribution (YouGov, 2015).

Moreover, (Dallas, Ponte & Sturgeon, 2019) explains "*power has been a foundational concept*" when investigating or exploring global value chains (GVCs). (Gereffi, Humphrey & Sturgeon, 2005) point out; evidence suggests an asymmetry bargaining power link between "*powerful lead firms*" such as MNC Supermarkets and those less powerful dyadic food producers and suppliers (Best, Sarah, Mamic and Ivanka, 2008). (Dahl, 1957) argues "*strong buyer power*" is often seen as 'coercive' and conflict-orientated, suggesting "*incentives or sanctions*" are purely resource-centred and used intentionally to enforce specific measures or pressure actors into submission. (Hopkins and Wallerstein, 1994, 2009) argue (GVCs) are institutions that define 'value-adding' through "*inclusion, exclusion and participation*" through to final distribution and resource-capture.

(Memedovic and O, Shepherd, 2009) argues GVCs have "*consolidated retail power*" transforming control away from primary producers and small growers (Barrett, Berdegué and Swinnen, 2009). (Fold and Pritchard, 2009) explains "*advanced technologies*", foreign investment, liberalised international trade and consumer demands for fresh food products, which fuels GVCs activities, in as much as creating MNC supermarkets into 'lead firms'.

These 'lead firms' and their representatives have "*enormous buying power*"; which they deploy coercively against suppliers (Kaplinsky, 2004). Demanding acceptance of "*cost-cutting production measures, enhanced food and traceability standards*". (Young and Hobbs, 2002) discuss GVCs as a sophisticated sourcing network of transnational "*integrated growers*" that are controlled by "*large-scale supplier networks*" that must produce "*high-volume, low-price, diversified products on a year-round basis* to meet global demands.

2. 11. 5 Value Chain Governance and Types

Multiple stages within the rice processing operation present opportunities to introduce value-adding practices (Porter, 1995) certain factors and elements will be examined to highlight value-adding within Myanmar rice supply chain. At market governance and access to the customers, one initial thought, to improve overall rice quality might be the actual rice seed, identifying what quality levels are achieved in the production of this seed, its potential yields and soil requirements? However, seed production can be a costly endeavour that can have an adverse effect on the actual retail price from a competitive standpoint, one that might not be acceptable to either moderators or mediators. However, (Birla et al. 2017) argues *"quality is the proportion of economic product recovered from milling"*, rice grain milling involves multiple factors.

Figure 2. 7 explains the "degree of power" asymmetry found within global value chain governance and their types (Gereffi, 1994).

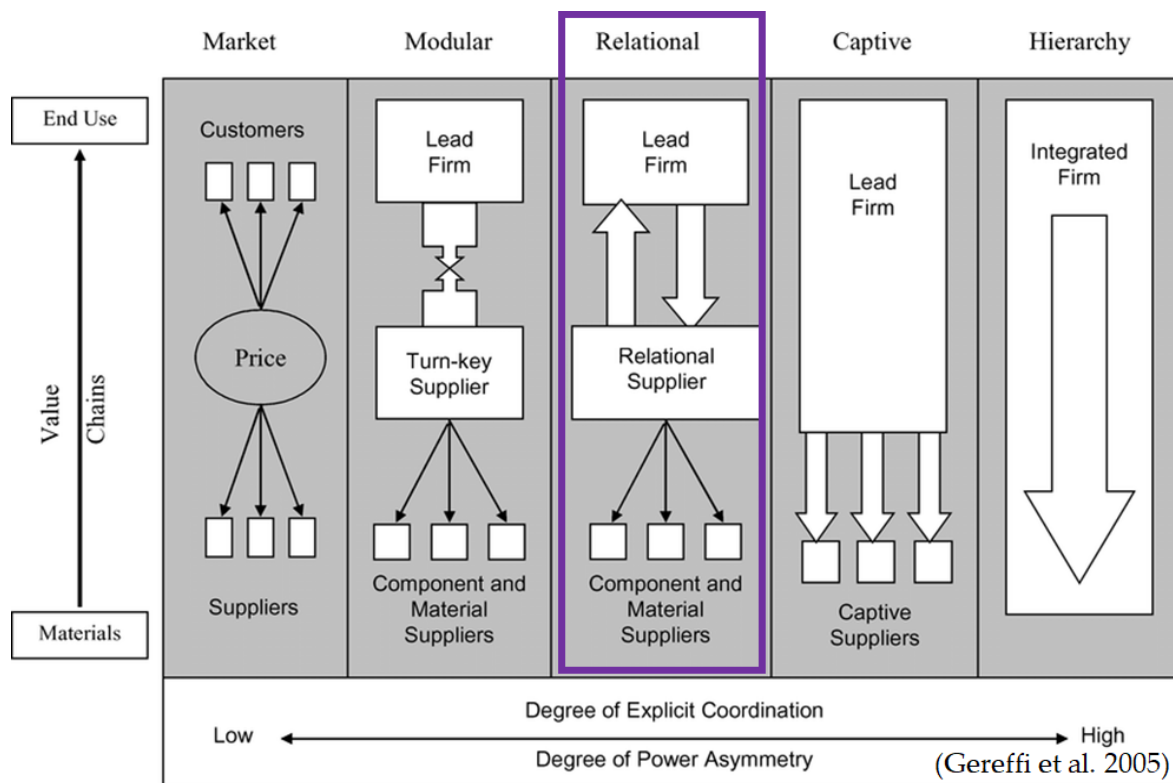


Figure 2. 7
Degree of Power Asymmetry

Modular approaches could produce inconsistency in quality affecting overall value; this would be due to underdeveloped infrastructures within the country and a lack of upstream and downstream production stores and warehousing. Considering a relational GVC approach could suggest two different rice outputs, white polished and broken, service two markets directly. Two specific areas of value-adding point towards reducing broken-grains percentage that substantially reduces total grain value. Increasing total polished white rice production or output (Ricestat, 2018), polished white rice ultimately is identified as a commodity that consists of the 'highest' quality achieved from the milling process.

However, the development of the country's infrastructure would need to improve to maximise such a relationship from a financial point-of-view, as elements of risk would be shouldered by the producers alone. Moreover, a captive GVC approach shown in figure 2. 8 consisting of specific demands and conditions on improvements in quality would be value-adding of hygienic, trackability and storage, plus the grain condition and moisture contents prior to, and after milling is completed, colour grain separation, packaging and labelling would introduce a final total 'value-add' element to the rice. However, (Tillmann, Sapountzis, Tzortzopoulos Fazenda & Formoso, 2012) argue that producing value is not *“unique within the design of the facility alone”*, but the potential of realizing the project *“holistically that aligns with strategic purpose”*. The diagram below suggests where 'value-adding' in the rice sector can be 'considered' for further investigation.

Stages could be introduced or improved on, to comply with the demands often specified by GVCs contracts, the introduction of specific value-adding activities to create or to introduce value that can be directly linked to product quality for local or international consumer demand.

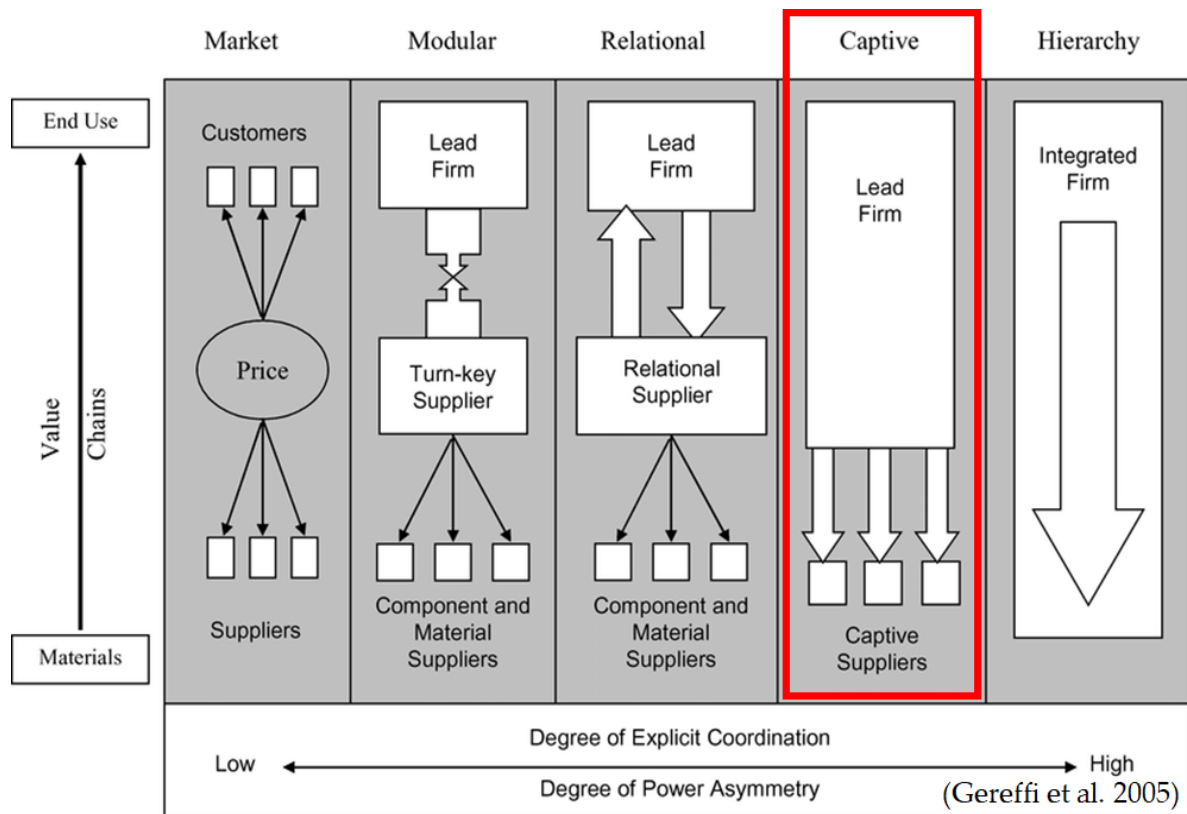


Figure 2. 8
Captive Degree of Power Asymmetry

These calculated factors of production indicate a quality level, and the question would be how to assess this level and by what standards both moderators and mediators can work towards developing the rice sector. Potentially, increasing economic benefits at farmgate prices and overall GDP further downstream and ultimately attracting buyers within GVC for local consumption and export. The development of GCCs into GVCs over the last two decades shows the power transfer from the many producers and growers into the hands of a few MNC.

However, there is evidence that would indicate much of this transfer of power, overall, has positive impacts for producer, governments and consumers across the board. Benefits range from healthier safer products through improved production, increased farm gate prices, industry developments through communications tools and methods, and labour wages. However, there are complaints of 'coercion' which should be addressed by governments when regulations are broken to ensure transparency and international norms are followed.

2. 12 Comparative Advantage within Value Chains

(Gehrke & Kurz, 2001) suggests, Ricardo's overall analysis of value stems from three specific areas, where value is attributed to "*bullion, corn-law and Labour*" (Hollander, 1904). Each of which attributed a value in exchange or a 'common price' for food. However, "*measurable of value*" or one that was associated directly to labour or that which will produce commodities are expressed as overall utility (Stigler, 1958). However, another 'value' factor is created through 'scarcity', caused by demand or increase; when the quantity of the item is not increased sufficiently, or at all (Peach, 2009). However, (Watson, 2016) explains, for the last 200-years Ricardo's "*theory of comparative advantage*" stands out as the theoretical model for international trade, one that embraces an "*interlocking pattern of absolute advantage*", pointing towards units of production and labour cost per country.

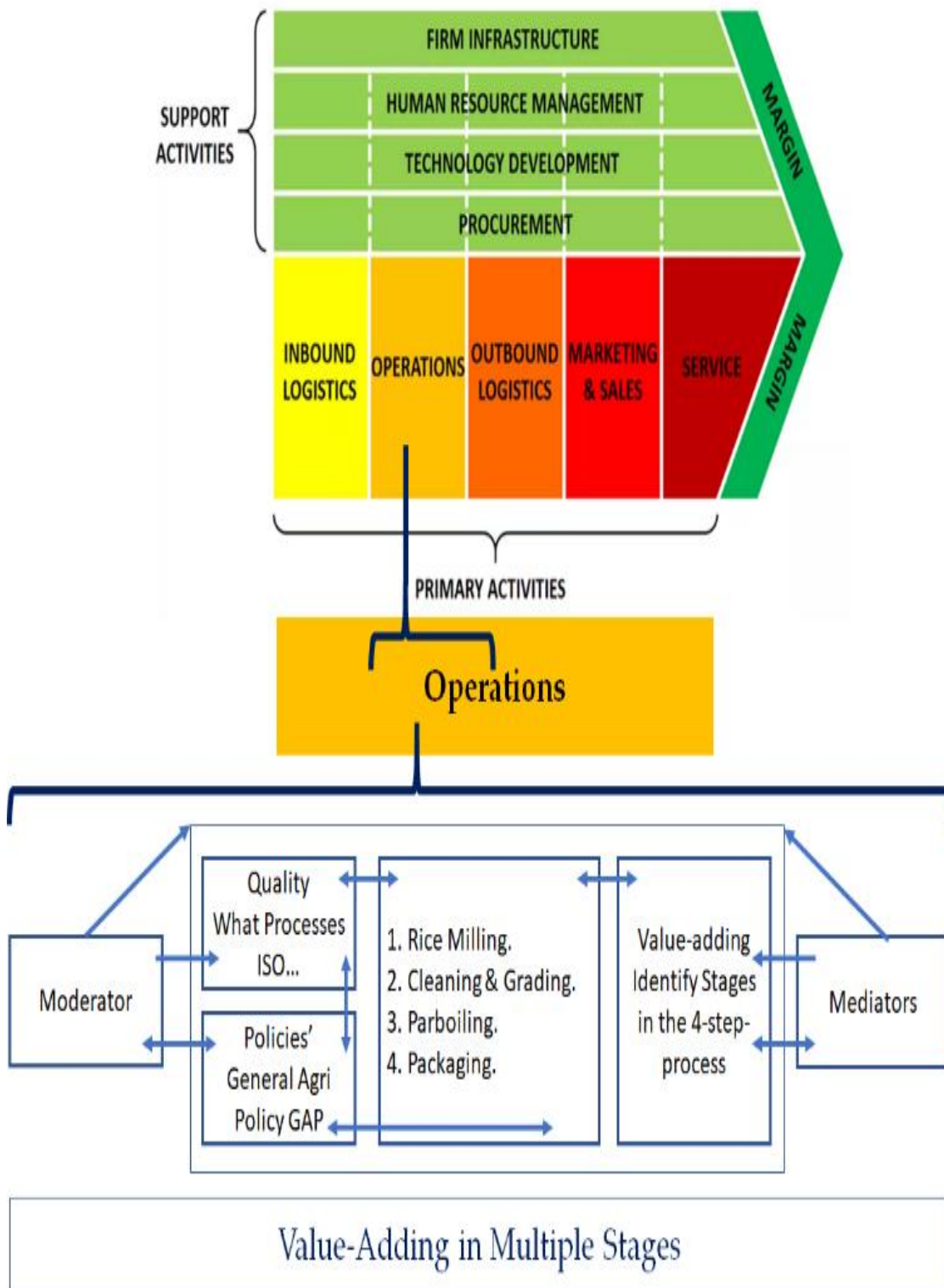
(Cohn, 2012) argues "*comparative advantage is less intuitive*", suggesting that international trade, or trade between two or more actors, no matter their location, offers advantageous outcomes replacing a less preferred "*absolute advantage*" first introduced by Adam Smith (Hiscox, 2014). Looking more recently, (Porter, 1985) proposed that value within an organisation can be a series of "*interconnected*" activities, which ultimately, encourages a purchase by a customer. (Band, 1991) argues value is "*created*" for the customer, (Cousins, 1994) argues value is any "*process or activity*", (Van Weele, 1984) argues value encapsulates "*purchasing decisions*".

However, (Lanning (1998) points out that a combination of activities, not just one, is a value proposition. (Dumond, 1994; Telgen and Sitar, 2001) introduce the idea that the term value as a condition used as a "*qualifier of the purchasing activity*"; moreover, Rajagopal and Bernard (1994) point out, value is as an "*added service*", (Smeltzer, 1997; Scheuing, 1998; Baily, Farmer et al., 1998) expresses this activity as "*value-adding*" or "*value-added purchasing*". (Raedels, 1994) claims value should be a condition or factor of "*supplier management*".

2. 12 a Porters Value Chain – Operations'

The researcher intends to examine how Porters Value Chain (PVC), a system of interdependent activities is 'employed' and used in successful supply chain environments, and then to compare how this is directly related to Myanmar rice agricultural value chain. Specific areas for investigation are the operations activity, as shown in figure 2. 9 below, as from several observations, this is where value-adding processes are weak in Myanmar. The potential of the (PVC) as a structured approach can be credible for assessing where the actual value is created within the operation activity, costs can be visualized, and value-added activities added or removed in order to increase actual value at each stage. Attention and improvements here have the potential of increasing the value of the product leading to higher farm-gate prices. Yet, it's also understood that much of the operations activity is predetermined by decisions made during the initial procurement process.

Such as the quality of the imputes 'seed, herbicide, fertilizer' and knowledge, combined with trained labour. Multiple academia authors explain that value chain activities should be described and communicated through a coordinated effort. The researcher will identify which value-adding activities exist, if any, which can be shown as offering potential competitive advantage if employed or used in the operational activity. Figure 2. 9 illustrates value-adding activities and policy fundamentals for both moderators and mediators that will be identified during the research phase.



Source: Adapted to include value-adding elements for research (Porter, 1980)

Figure 2. 9
Porters Value Chain - Primary Activity - Operations

2.12.1 Value-adding processes broken-down

- (Porter, 1984) value-adding framework specific to operations, identifying the activities, procedures, raw materials into a finished food product, this would include adding labels or branding or packaging several products as a bundle to add value to the rice product.
- Show the primary differentiation between a progressive rice supply chain and another 'more' prosperous country in ASEAN that also produces rice? Discuss if there are 'variations' between these two countries, products and value-adding activities.
- Identifying the benefits of value-adding globally compared to not adding value.
- Identify interventions of Government departments and practical and useful (stages) within the supply chain for maximizing value-adding potential.
- Understanding of the 'current' Government policies – might identify reasons why value-adding might not be advantageous now or ever.

2.12.2 Value-adding – Activities'

Rice Milling, Cleaning and Grading, Parboiling processing and packaging

2.12.3 Milling

- After harvesting of the rice, the milling processes are considered one of the most productive or destructive processes, stage one, the process includes removing the husk and the bran from the paddy rice. This often produced two colours of rice, white and brown. Stage two is less expensive and is usually completed in separate steps by hand, often women are employed in rural areas to separate the two grains.

2.12.4 Cleaning and grading

- This stage offer value-adding potential, white rice and brown seeds are separated; brown rice is often sold at a higher price to consumers due to the apparent associated health benefits.

2.12.5 Parboiling

- The rice is processed through three stages: first, the rice remains in the husk and is soaked for a period of time; this allows the rice to absorb water and expand. Second, the rice is steamed attaining 'partially boiled' texture that enhances the rice nutritional benefits; this steaming stage reduced the cooking time for consumers of rice 'value-adding'. Finally, the rice is dried, and any remaining husks are removed.

2.12.6 Packaging

- The last process is the packaging process; milling businesses offer a variety of final packaging alternatives. Many mills offer the standard 20KG rice sack, these sacks are placed on a scale at the final pipe stage of the milling machine, as the rice comes through the pipe the scale shows the weight of the sack. At 20KG the pipe is moved to another rice sack, and this sack is quickly stitched tight and moved to a dry storage area. However, more developed milling companies offer multiple weight packaging opportunities from 3KG, 5KG and 10KG weights of rice in heavy-duty plastic packaging bags that already have the company name, brand and dietary information printed on the bag.
- However, poorly maintained mechanical processes can and do damage and break the rice, whether white or brown, at this point, value-adding potential is lost. Broken rice is usually sold 60-70% less per kg at the retail side, providing lower farm gate revenues. Increases in the incomes of middle-class consumers in urban areas offer 'potential' value-adding opportunities; these would be added during the 'operation' stage, considering the development of processed rice-based products and packaged foods. Such as ready meals that need a microwave or chilled ready-to-eat foods that offer diet diversification or a healthy-option, again identifying 'value'.

2.13 Where are the GVCs in Myanmar?

Much needed investment and improvements within the rice supply chain could assist in the overall development and entry into a Global Value Chain system; this could provide financial benefit across the board for all stakeholders involved in the Rice Value Chain. Introduction of value-adding methods and adoption of GVC standards and knowhow can potentially provide additional revenues for both moderators and mediator, overall adding substantial economic value to all actors. Analysis of Government moderator policy and practitioner's mediator production could present valuable data on how these two independent groups are working together or not, is there a direct correlation that shows this? Further development and incremental improvements in government policy and operational procedures could have direct and immediate positive results on profits and reductions in broken rice, these amount to total value losses across the supply chain.

Although, over these last years, export quality continues to weaken for whole-grain yields, declining year on year, whereas broken rice production and its export continues to increase, in tandem; suggesting direct losses of value across the supply chain overall. One question would be to understand why does broken rice production continue to increase, when value is lost? The opportunity to compare and review the results against GVC literature from an academic perspective looking at value-adding capabilities deployed at specific parts of the rice milling production and operations process, delivering added benefits in quality output and advantages to the supply chain as a whole for moderators and mediators alike. Whereas GVCs and lead-orderers such as supermarkets can observe and quantify if these added-values meets their overall requirements, finally entering the Myanmar market, offering quality and value rice grains to their consumers. These points will be assessed, are they directly linked to rice processing? Value will be examined and qualified as being understood or misunderstood. Questions will be proposed to analyse the governments' overall approach on 'value creation activities' within the agricultural sector.

2. 14 Value Understood Grammatical

The thesis attempts to explore how value is understood from a grammatical and practical perspective or position by both moderators and mediators, as a misunderstanding of this term value could be evident in both policymaking moderator and in practical delivery by mediators.

Both can offer much-needed insight on an understanding of value, value-adding processes and methods and value creation at the rice processing and production stage processes? However, complications with rice milling value-adding processes and the differences that both moderators and mediators understand or associate the grammatical term for value?

2. 14. 1 Four Components of potential Value-add

Table 2. 7 below highlights how both moderators and mediators actors can have differences of opinion and needs and wants; this can cause or introduce unnecessary value-adding as a waste of time or production losses. A clear policy is required to ensure both actors work towards a common synergistic economic goal.

Table 2. 7

Four Components of Potential Value-add & their citations

The following page shows a screenshot with more clarity.

Table 2. 7

Suggested Value Identified Using 4 Components

Publications / Definitions / Value / Value- adding / Value in use / Competitive Advantage / Operations Systems & Procedures'	Moderators Government	Value Grammar	Inductive Approach	Academic Linkage	Deductive Approach	Value Grammar	Mediators Businesses	Cited in the Literature
Rice Milling	Technology / Decision-making Systems / Operation models / Traceability / Integrated Data-capture	N & A	Economic	Porters Value Chain (PVC)	Economic	N	Energy Infrastructure / R&D / Economic Investment & Development	(Porter, 2012) (Van Dusen & Nissen, 2019) (Ausserhofer, Gutounig, Oppermann, Matiassek & Goldgruber, 2017) (Buxton, 2005) (Method, Kosso & Netherlands, 2020) (Brown, 2020) (Zyphur & Pierides, 2019) (Mesly, 2020) (Glesne, 2011) (Porter, 1985)
	Business Acumen	N & A	Economic	Porter's Five Forces - Power Suppliers	Economic	N	Entities engages in legal agricultural activity	
	Farmers / Employees Customers / B2B / B2C Government	N & A	Impacting Leadership Decision Making	Stakeholders	Economic	N	General population	
	Skills / Training & Development	N & A	Decision Making	Value-adding Processes / System	Impacting Leadership Decision Making	N & A	Education / Skills Development	
	Investment R&D New Market Buyer Power B2B	N & A	Decision Making	Competitive Advantage: Cost / Differentiation	Impacting Leadership Decision Making	N	Investments in new Milling facilities Development of Seed System Water Management	
	Government Agricultural Policies	N & V	Economic	PESTLE	Impacting Leadership Decision Making	N & A	Political Will Economic Growth / Exports / FDI Social Improvements / Poverty Reduction Technology Agri / Skills Development Environmental Food Strategy 2050 Legal frameworks	
	New Markets Exchange Rate Poor Infrastructure	N & A	Economic	SWOT	Impacting Leadership Decision Making	N	Infrastructure Development TAX Incentives Financial Loans	
	Inconsistent Agricultural Policies	N	Decision Making	Government 'General Agricultural Policy' GAP	Impacting Leadership Decision Making	N & A	Economic Development	
Cleaning and grading	Value-adding methods / systems	N & A	Decision Making	Value-adding Processes / System		N & A	Government provided materials on Value-adding Processes	
Parboiling		N & A	Economic	Porters Value Chain (PVC)	Economic	N		(Given, 2008) (Toward, 2001) (Howe and Eisenhart, 1990) (Aboah, Wilson, Rich & Lyne, 2019) (Assche & Gangnes, 2020) (Chatain, 2010)
	Value-adding methods / systems	N & A	Economic	Value-adding Processes / System Processed rice-based products	Economic	N		
		N & A	Decision Making	Ready to Cook / Eat meals Healthy Options	Economic	N	Business Development Loan	
Packaging		N & A	Economic	Porters Value Chain (PVC)	Economic	N	Energy Infrastructure / R&D / Economic Investment & Development	
	Customer Focused	N & A	Economic	Porter's Five Forces - Power Buyers	Economic	N	Products comply with legal requirements	
	Value-Creation	N & A	Decision Making	Value-adding Processes	Economic	N	Business Development Loan	(Diakantoni, Escaith, Roberts & Verbeet, 2017) (Gereffi, 2019) (Grönroos, 2011) (Higgins & Scholer, 2009) (Lee & Gereffi, 2015) (Memedovic & Shepherd, 2009)
	Exports New local markets International development Imports / Technology Business Expansion	N & A	Impacting Leadership Decision Making	Competitive Advantage	Impacting Leadership Decision Making	N & A	Job Creation Poverty reduction FDI / Local Investment Programmes TAX Incentives Increased Imports / Exports Agri Technology Development	
	Influences	N & A	Impacting Leadership Decision Making	Advertising / CBB	Impacting Leadership Decision Making	N	Consumer Buying Behaviour (CBB)	
	Legend Noun Adjective Verb	N A V						

2. 14. 2 **Global Supply Chain Management GSCM**

(Henderson, 1989; Doner, 1991) explains, from an academic theoretical perspective within the area for *“semi-peripheral and peripheral”* research, on world-systems philosophies have been recognised *“as structural contexts in the world economy”* whereas (Gereffi and Korzeniewicz, 1994) suggest that a Government desire to improve GDP output through *“higher value-added activities”* employ *“economic strategies”* to catering to Global Commodity Chains. (Bhatnagar, 2012), defines Global supply chain management (GSCM) as having a geographically strategic mind-set that coordinates and manages transnational assets through unique and specific systems. To produce and distributes products, and other such goods and services between transnational and multinational corporations, organisations, and firms, with an objective of maximising profits throughout the supply chains SC's or supply networks SN's, eliminating waste of all types at each stage.

(Tomas and Hult, 2003) argue that GSCM is identical to SCM except that where SCM often can be focused on organisations that are in one country with the option of transacting with transnational or multinational companies. GSCM, on the other hand, concentrate extensively on transnational or international and multinational businesses alone; through this global research GSCM can (McKinnon, 2012) comply with *“countless international regulations”*, through their extensive links, ensuring overall control, which offers the potential for significant profits and waste reductions. (Elms, Weil, Lessard, Gattorna & Goh, 2013) point out; GVCs are endorsed by multiple agencies such as the UN, WTO and NGOs as having potential economic development within a country. However, (Beverelli, Stolzenburg, Koopman & Neumueller, 2019, p. 1467) argue, *“Global value chains (GVCs) are an important phenomenon of 21st-century trade”*. GVC can be described as controlling and coordinating a network of suppliers of goods and/or services located throughout the world and interlinked through a series of contracts.

Through competitive means, suggesting that Governments remove charges or costs to entice GCC to bring employment to their country (Hummels, Ishii, and Yi, 2001). (Baldwin and Robert-Nicoud, 2014) argues GVCs offers the potential for “*productivity improvements*”, governments that have created or adjusted their policies towards foreign direct investment and transnational business have shown (Grossman and Rossi-Hansberg, 2008) “*technological improvements*” knowledge, (Empirically, Kummritz, 2016) “*higher labour productivity and value-added*” training & skills and financial improvement for their society. (Hummels et al., 2001, Johnson and Noguera, 2012) explain, GSCM established which countries offer the potential for GVC integration. (Baldwin and Lopez Gonzalez, 2015) some examples of these initial requirements are closed location to established GVC hubs through road, rail and shipping links, “*country size, industrial structure and location*”.

Business trading environment, labour laws, investment policies, banking and financial regulations (Kowalski, Lopez Gonzalez, Ragoussis, and Ugarte, 2015). (Guzhva, Nebotov & Ivanov, 2019) argue, Governments that balance such benefits that GCCs might offer, understand that GVCs can be (Chen, 2018) seen or viewed as influential. Meaning, transnational and multinational corporations can leverage or wheel power gaining the upper hand in negotiations before entry (Borras & Zysman, 1997, cited in Dallas, Ponte & Sturgeon, 2019). These can be in the form of (Cohen and Mallik 1997) ‘tax breaks, non-binding employment contracts, minimum wage setting and free from prosecutions for violations to the environment.

(Kotabe and Murray 2004, Buckley 2011 cited in Chen, 2018) explain that multiple times MNCs have come under “*increasing scrutiny*” for violations ranging from labour laws violations, child labour employment, economic and environmental violations and tax avoidance. Nevertheless, governments have been known to turn a blind eye to these violations in many countries (Guzhva, Nebotov & Ivanov, 2019).

2. 14. 3 **Evolution of Supply Chain Management beyond 2020**

(Benavides et al. 2012) explains that *“misinterpretation of top management”* and inadequate provisions for SCM are considered as *“major obstacle of SC Collaboration”*. Likewise, (Lago and Verma, 2017) contends *“leadership that should drive interdepartmental coordination”* within an organisation is inferior as managers are reluctant to engage in relationship building across the SC or SN. (Stolze et al., 2016) explains, SCM is dependent on the *“intrafirm integration”* clear understandings of supply chains (SC) and supply chain networks (SCN), should be a recurring objective of the organisation.

All employees can be trained to identify potential value-adding elements; this can be achieved through supply chain orientation training programmes provided within the organisation. (Bughin et al., 2016, cited in Soonhong, Zacharia, and, Smith, 2019) explain that SCM has greater access to big data, affordable or free mobile applications that are directly linked to social media platforms, which offers seamless interaction with their customers directly, taking SCM into the digital realms.

Customer feedback is the new ‘precious’ reward adding perceived value to the total SCN (Zhao, Zhang, He & Huang, 2019), (Hong, Zheng, Wu & Pu, 2019) argues social media networks allow consumers to easily post comments about *“price, quality, logistics, purchased services and other product elements”*. (De Maeyer, 2012) argues, *“pricing strategies are formulated using online consumer reviews”*. (Zhao, Zhang, He & Huang, 2019) argue, *“Big data, fuzzy logic and deep web crawler application track the entire order process”*, to maximise perceived added-value. (Ismail, 2017) points out that perceived value is a combination of *“social media marketing and pricing strategies so as to enrich brand loyalty and value”*. (Gezgin et al., 2017) argues that business is driven to exploit technical capabilities; SCM is a strategic component within the organisation that must be aligned to the digital economy.

However, (Bughin et al., 2016) point out that, the new SCM are unified data management algorithmic systems, not just *“integrating, calculating, forecasting, planning and execution activities”*, but are engaged with predicting demand across the SCN. Moreover, (Soonhong, Zacharia, and, Smith, 2019) point out that *“the whole purpose of SCM is still to create customer value”*. In this context, Asthana (2018) argues SCM ultimate goals are still: customer motivated, efficiency and accuracy and with all orders through to final on-time delivery. Supply chain management SCM is undergoing compelling modifications with new digital technology adoption (Capgemini, 2016; DHL, 2016; Wu et al., 2016; Haddud et al., 2017, cited in Calatayud, Mangan & Christopher, 2019). (Queiroz & Fosso Wamba, 2019) argue that Blockchain is a *“cutting-edge technology”*, a new *“digitalisation phenomenon”* that has already started to revolutionise SCM completely, *“leveraging, transforming and remodelling the relationships between logistics and all SC systems”*.

(Wong, Leong, Hew, Tan & Ooi, 2019) explain, Blockchain will disseminate, *“real-time data gathering opportunities providing end-to-end visibility”* Blockchain has the potential to achieve many of the objectives of supply chain management such as better decision making, *“cost, quality, speed, dependability and risk reduction”* (Kshetri, 2018, cited in Wong, Leong, Hew, Tan & Ooi, 2019). (Alvarado-Vargas & Kelley, 2019) argues, as GCCs grow and expand into other countries and jurisdictions through the GSCM mechanisms, combined with *“uncertainty in the marketplace”* have the potential for *“severe disruptions”* due to a (Wang and Disney, 2016) ordering amplification or oscillating phenomenon called the Forrester or bullwhip effect.

This causes a reaction throughout SCs and SNs and ultimately within the GSCs itself (Lee et al., 1997; Wang and Disney, 2016). (Prater et al., 2001; Worren et al., 2002) argue that there must be *“strategic flexibility”* rather than *“distant echelons”* intensifying output causing potential and unexpected system shocks within GCC, it is here that GSCM must control all activities ensuring maximum profits with minimal waste (Gereffi and Lee, 2012).

(Degain, Meng and Wang 2017) argues, these Corporations continue to evolve GVCs through the reduction in overall complexity, meaning that multiple suppliers within the SCs are being phased out, whereas specific suppliers are consolidating thereby accessing greater capital-intensity for growth, reducing costs throughout the GVCs. (Crane, LeBaron, Allain & Behbahani, 2017) explain the difficulties that SCM and GSCM are facing with '*exploitation*' of all kinds, from a local, regional and global level. (Hopkins and Wallerstein, 1977) proposed, GCCs introduced the "*divisions of labour*" since then many academics have created scholarly frameworks and written widely on GVCs (Allain 2015). (Sarfaty, 2014) points out; GVCs can be very dynamic, fluid in their operational activities and decision-making processes, yet (Andrees & Belser 2009; Allain et al. 2013) argue that SCs and SNs in general, have been identified to be employing forced labour tactics (Gereffi et al., 2005). (Gereffi and Lee, 2012), GVCs have grown at exponential rates over the last 20-years, many ethical concerns and actual business practices (New, 2015) were left unattended or monitored causing broader social issues (Allain, 2012; Crane, 2013; RNLPS, 2012) argue, the terms that identify modern slavery in SCs are associated to SC '*mismanagement*'. Nevertheless, often SCM does not have such controls or legal support over suppliers.

2. 14. 4 Research Gap and procedure

The thesis highlights a considerable number of studies that concentrate on global value chains and value adding processes, however, there are limited studies that concentrate on understanding the misconceptions of value and value-adding processes at the moderator and mediator level in Myanmar. This thesis will first concentrate on contributing to current theoretical knowledge of value-adding (VA) and Value Chain Analysis (VCA) within supply chains, that shows at which stages appropriate enablers or deterrents may be employed within the rice milling production process. The literature review explains value's methods and concepts, pointing out where within a process value is created or lost.

Porter (1985) suggests improvements in efficiency within the production systems can enhance profits. (Kashav, Singh & Shabani, 2016) point out that "*identifying the importance of adding value*" at specific stages of a process can be driven by a best-practice process. The importance and relevance of (VA) have been investigated extensively, (Krishnapriya and Baral, 2014) conclude that "*firms need to integrate their key business processes*" and identify where (VA) can be deployed within a process. As early as March 2021, minimal research looks at Myanmar's moderators and mediators on rice value chains. Under increased global competition, local food supply chains, moderators, and mediators' practices can be misaligned when understanding value-adding within multiple processes. There can be various factors that both moderators and mediators should consider but might not be aware of. Therefore, a variety of theoretical frameworks on value-adding (VA) and Value Chain Analysis (VCA) will be critically examined; to identify what processes should be measured and why. Moreover, to understand if adding stages too or removing stages from a process actually adds value to the milling of rice as suggested in several academic discussions?

The second proposed contributions that will be addressed are the practical elements, The empirical research will be deployed as follows; qualitative semi-structured interviews questions were selected from the literature and presented to a select group of Government ministers and managers (moderators) who have or are responsible for agricultural policy in Myanmar. The questions that were be proposed aim to figure out how both moderators and mediators understand value-adding (VA) and the methodology of Value Chain Analysis (VCA); and why it is essential within the production of whole grain rice. The main sources of evidence were the interviewee responses to the semi-structured interview questions. As explained within the literature review, all three independent groups have self-serving agendas for the moderators' and managers value-adding points towards GDP. In contrast, for the mediators, it points directly to profits within the business. Therefore, from an academic perspective the interview questions and responses illustrated and explain their understanding of value-adding and Value Chain Analysis.

This research intends to evaluate the responses of the local three case study groups against the internationally recognised SCOR model framework so as to test and establish the research gap of the understanding of the theoretical conceptual meaning of value and value-adding in supply chains in Myanmar.

2. 14. 5 Key findings

Several essential components or factors were discovered in this empirical research. Value as a construct presents both positive and negative participation, significantly where costs, expenditures and pricing are associated. Theoretical terminologies that express or identified value or value-adding were misunderstood by all three case study group participants. Literature explains that value and value-adding processes should be identified with explanation, documentation, and implementation of methods and systems to measure outcomes. However, Government policies are vague in engaging with literature when developing a competitive advantage. These key findings may well permit governmental authorities, rice millers and academics to concentrate and capitalise on some of these important factors within agricultural value supply chains.

2. 15 Chapter Summary

Chapter two began to explain which processes and procedures were taken and which relevant source materials were used to answer the research questions and to deliver supportive evidence when determining the objectives of this empirical study. A conceptual framework was chosen using cited knowledge from renowned authors, which illustrated the processes that the researcher would engage in and follow. Moreover, chapter two described the linkage between the term Value and how it is perceived in supply chain management; and how value-adding activities delivered across a rice milling supply chain can recognise value creation. Underscoring this activity as value-adding within or at specific stages of an operation, particularly rice milling production, where the potential for competitive advance could be recognised. Furthermore, chapter two pinpoints the challenges or areas of dispute between government and managers, government policy and rice mill owners. The introduction of value creation activities at specific rice milling stages shows constructive competitive activities as either an advantage or as a gap within the supply chain literature. The significance and consequence of these reasons were assessed during face-to-face semi-structured interviews; this was the main sources of evidence from the interviewee responses. on other occasions; the researcher interviewed each case study groups as their office locations to collect observational data. This empirical research thesis focuses on value creation opportunities within agricultural supply chains across Myanmar, particularly the Ayeyarwady delta. Moreover, the supporting literature review identifies the necessity for value creation processes, thereby testing a primary theoretical framework against notably the SCOR Model that could be deployed in the form of unique and measurable steps or stages known as value-adding. A process of adding to or removing from a series of steps or processes. Or identifying steps or stages that do not add value. Removing these to achieve improvements to overall value creation, that can assist in the development of or improvements to competitive advantage, as describe in the literature.

Chapter Three

Methodological Approach

3. 1 Introduction

The author's overreaching aim of this study is to take a pragmatic approach to understand what 'value-adding activities' are practised in Agriculture Value Chains (AVC) within Myanmar, specifically Ayeyarwady delta. Moreover, to determine whether Government initiatives or strategic business decisions are working in tandem 'together' to enhance the economic potential for rice production and rice exports. To answer these questions, a qualitative method was taken, that pursues an inductive approach. Current literature on global value chains (GVCs) will assist in the development of a semi-structured list of interview questions; that will be presented to a selected group of government officials, government employees and those responsible for delivering government initiative programmes and funding. Those who have direct responsibilities for agriculture rice policy and implementation of agricultural rice programmes within the Ayeyarwady delta.

3. 2 Mythos and Logos

(Saunders et al., 2012) argue, a fundamental concern to validate all types of research questions must be, to have for example a "*methodological*" factor or "*sufficient insight and knowledge*" about the research area or phenomenon, ensuring the "*right questions are recognised and acknowledged*" these are essential elements. (Polychronakis, 2011) describes these two terms as "methodology" and "methodological" as originating from two Greek phrases "methodos" and "logos". Linkage to the most appropriate "*methodology*" or method offering insight and knowledge. A methodological approach would employ a descriptive rational strategy throughout the research thesis. Linkage to theories and the decisions to engage or use specific 'methods' and principles should be clear and point towards the research objectives (Saunders, Lewis, & Thornhill, 2009; Saunders, Lewis, and

Thornhill, 2012). Historically, (Manthey, 1969), the Greek philosophy or term 'methodological' had its origin as 'Mythos' that developed into 'Logos'. However, there were differences in time and clarity of mind or feeling associated with both. Mythos had its origin in what we understand as the 'mythical' age. (Gruyter, 1969) explains Mythos and its mythical domain as "*poetry or general speech*"; whereas 'Logos' or the Greek word epistēmē for "*new knowledge*" or "*to think of being*" proposed the pronoun "*what*", offering aletheria or '*truth*'. Protagoras would challenge this division arguing that there are no "*singular or universal truths*" proposing a third term 'Nomos' "*that which is practised or known to be right*" offering "Mythos-Nomos-Logos" or Orthos' ὀρθός' "*straight forwards*" of custom, law and political behaviour (Jarratt & Funderburgh, 1991). Aristotle argued, Orthos offered an opinion or "*doxa*", ethics or feeling and did not provide 'truth' but "*phronêsis*" practical perceptions (Moss, 2013) alone. Whereas 'Logos' epistēmē or logical practises and procedures supporting Plato's explanation for epistemology "*what it was to know*" to reach a conclusion on a phenomenon or observation; not an opinion. Epistemological as we understand it, as an alternative to Philosophy, encompassing factors such as a research aim, scope and selected methods which will be used to collect and validate these data; "*is good for the knower*" (Steup & Neta, 2020).

3. 2. 1 **Orthos & Logos**

Here we find the beginnings of what we understand as 'qualitative and quantitative' research methods, Orthos which points towards 'opinions' (qualitative) and Logos or new knowledge starting investigations with a pronoun 'what' suggesting a (quantitative) method.

3. 2. 2 **The Transition 'Mythos' and 'Logos'**

Table 3. 1 created by author identifies keywords of a transition from 'Mythos' and 'Logos', citing their origins on the left & right columns (Jarratt, 1987). A progression of how each word is identified grammatically and its meaning. The overarching summary of the table establishes a certain mindset for either a qualitative or quantitative method.

Table 3. 1
The Transition 'Mythos' and 'Logos'

Transition from 'Mythos' ancient Greek stories to a gradual development of rational philosophy 'Logos'							
(Steup & Neta, 2020) (Moss, 2013) (Buxton, 2005) (Glynn, 2005) (Graham, 2002) (Belfiore, 2000) (Mäche, 1992) (Jarratt & Funderburgh, 1991) (Hussey, 1982) (Manthey, 1969) (Gruyter, 1969)	Myths / storie / narrative / cultural / beliefs / actions / religious / tale / tradition / spoken / story / mythology	Mythos	Noun	Noun	Logos	Appeal to logic / Study / message / question / persuading / reason	(Steup & Neta, 2020) (Moss, 2013) (Buxton, 2005) (Graham, 2002) (Jarratt & Funderburgh, 1991) (Hussey, 1982) (Manthey, 1969) (Gruyter, 1969)
		↓			↓		
(Elliott et al., 2000)	Constructivism - people / own knowledge / experiences	Belief	Noun	Noun	Logic	Creative / systematic / knowledge / theory / empirical / investigation	(Easterday, Rees Lewis & Gerber, 2017) (Spillman, 2014) (Jaeger and Cherniss, 1961)
		↓			↓		
(Long & Sedley, 1987)	Behaviour and Moral ideals	Virtue	Noun	Noun	Epistemology	Observable phenomena / theories, and hypotheses / mathematical models / data / methodological	(Else-Quest & Hyde, 2016) (Tuli, 2011) (Yilmaz, 2013) (Buxton, 2005)
		↓			↓		
(Lindahl, 2006)	Law / behaviour / custom / social and political	Nomos	Noun	Noun	knowledge	Knowledge / familiarity / truth / awareness / understanding something / scientific inquiry / analyzing / conceptual	(Ekici & Erdem, 2020) (Saunders et al., 2012) (Jaeger and Cherniss, 1961)
		↓			↓		
(Blake, 1993)	Abstract concept / Existing in thought or as an idea / not having a physical or concrete existence	Culture	Noun	Noun	Thought	Ideas / thinking / process / reason / decisions / stimuli / intrinsic / meaning / judgment / evaluation	(Winata, Sunardi & Djono, 2020) (Smuthy & Vehovar, 2020) (Kant, 1755)
		↓			↓		
(Bloomfield, 1972)	Interpretation / Moral or Political hidden meaning	Allegory	Noun	Noun	Facts	Observation / verifiable / occurrence / empirical evidence / measurement / theory / statement / correct / interpretation / demonstrate / validity	(Plato's Cave, 2020) (Gower, 1997) (Estrich, 1952)
		↓			↓		
(Damer, 2009)	Interpretation / judgement forming / not factual	Opinion	Noun	Noun	Truths	Truth / undistorted knowledge / positivists / observable / empirical / reality	(Whitty & Wisby, 2020) (Burgess & Burgess, 2011) (Stafford, 2000) (Blackburn & Summons, 1999)
		↓			↓		
(Bascom, 1965)	Myths or Folklore, historic stories, tales	Mythical	Adjective	Noun	Investigation	Collection / techniques / methods / study / information / research / ideas / systematic / examination / inquiry / fact-finding	(Van Dusen & Nissen, 2019) (Ausserhofer, Gutounig, Oppermann, Matiaszek & Goldgruber, 2017) (Buxton, 2005)
		↓			↓		
(Mascaro, Rosen & Morey, 2004)	Individual beliefs / life has function and purpose	Spiritual	Adjective	Noun	Reason	Explanation / applying logic / perceptions / rational / sense / empirical evidence / process / consequence /	(Mat Roni, Merga & Morris, 2020) (Zuckerman, 2020) (Vanhove, 2020) (Kant, 1755)
		↓			↓		
(Given, 2008)	Individuals / groups / an understanding of the world	Symbolic	Adjective	Noun	Action	Intention / movement / performing / repetition / conduct / occurring / statistical / purpose / Performing / Goal	(Johnson, 2020) (Abou Sen, 2020) (Nicol, Piccirillo, Mulsant & Lenze, 2020) (Estienne, 1578)
		↓			↓		
(Samburjak, Straus & Marusic, 2009) (Cooper, 1771)	Individual / peculiar / distinctive / person or thing or class	Characteristic	Adjective	Noun	Figure	Number / text / rhetoric / speech / characteristic / symbol / numerals / codes / numerals	(Vasilu, 2020) (Bottino, Liu, Bazzazi & Venkatakrishnan, 2020) (Groth-Mamat & Roberts, 1998) (Hume and Mach, 1905)
		↓			↓		
(Manning & Kunkel, 2014)	Values / institutions / laws / symbols / society	Social Imaginary	Adjective	Noun	Symbol	Letters / token / object / shape / sign / linkages / numbers / equation / communication / Constitutive rhetoric	(Lavallée, 2009) (Dori & Hameiri, 2003) (Langer & Knauth, 1953) (Estienne, 1578)
		↓			↓		
(Stenmark, 2018) (Sarna, 2015) (Michell, 2011)	Ethics / religion / devoid of scientific rigor / discretionary	Non-scientific	Adjective	Noun	Observation	Information / acquisition / instruments / perception / collection / recording / data / perception / notation / hypothesis	(Method, Kosso & Netherlands, 2020) (Brown, 2020) (Zyphur & Pierides, 2019)
		↓			↓		
(van Manen, 2006)	Rhetoric / pursuing / change / Metaphysics	Practical	Adjective	Pronoun	What	Interrogatively / inquire / information / expound / origin / something / extraction / interpret	(Gruyter, 1969)
		↓			↓		
(Reay & Jones, 2016) (Young & Atkinson, 2012) (Mason, 2006) (Firestone, 1987)	Descriptions / value-laden / quality / characteristic / people / objects / spoken / written language	Qualitative	Adjective	Adjective	Quantitative	Data / measurement / information / data / process / records / numerical / systematic / unbiased / statistical / phenomena	(Mesly, 2020) (Glesne, 2011) (Given, 2008) (Toward, 2001) (Howe and Eisenhart, 1990)
		↓			↓		
Inductive			Deductive				

3.3 Research types

(Saunders et al., 2012) explains research as "something that people undertake" whereas (Collis and Hussey, 2009) argue that research has no "unified definition" moreover, current literature suggests there are "two different approaches" that a researcher can adopt or employ when "solving actual problems". Using known theory explained as 'applied research' or in the event of developing and "adding to the existing body of knowledge" through conceptual developments or 'pure research' (Easterby-Smith, Thorpe, and Jackson, 2012); within a specific field of study or on a unique phenomenon (Cavana, 2001; Sekaran, 2010). Factors or indeed elements of research can adopt an investigative role, explore and analyse specific phenomena taking a general approach, at constructing or adopting different procedures or systems thereby finding alternative solutions through synthesise of existing knowledge (Sekaran, 2010).

3.3.1 Research 'Onion' Pathway

The research onion shown in figure 3. 1 below will explain how the research design will take shape and will be deployed.

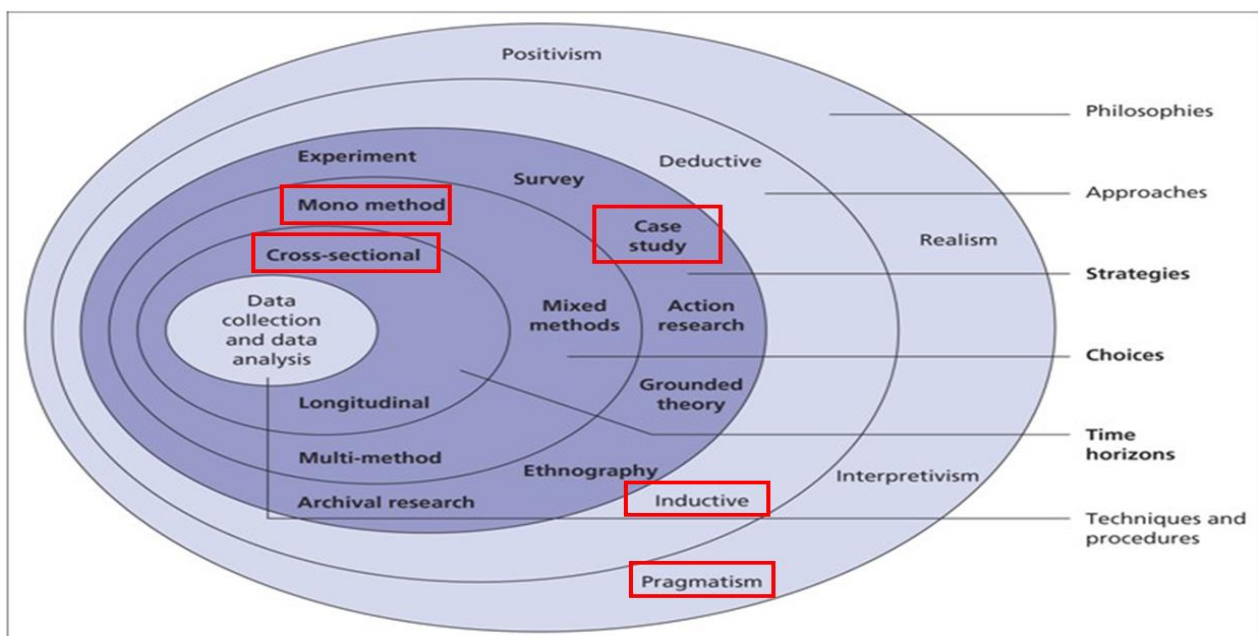


Figure 3
Adapted from: Saunders, M., Lewis, P., & Thornhill, A. (2019). *Research methods for business students* (8th ed.). Harlow: Pearson Education Limited. (Saunders, Lewis & Thornhill, 2019)

Figure 3. 1
Saunders Research Onion Pathway

3.4 Research Philosophies

(Neville, 2005) argues, researchers investigating a unique or specific phenomenon often bring "*personal interests, values and abilities*" to the process. Furthermore, explaining two prominent philosophies as "*positivistic*" or quantitative methods incorporates "*traditional*", "*experimental*" or "*empiricist*" paradigm (Creswell, 2007), a natural science in the "*study of human behaviour*". (Saunders et al., 2012) argues "phenomenological" research as being "*highly rich subjective*" qualitative datasets, often, unique numbers of chosen individuals are preselected for either face-to-face interviews or small groups. However, (Easterby-Smith et al., 2012) points out a research development process should emphasize a need for better "*understanding research philosophies*" or deciding on "*what will or not*" work, hence the research philosophy chosen is pragmatism.

3.5 Pragmatism

After the review of this information, the Pragmatism approach suggests a much better choice as it can point towards leadership and analysis of factors impacting leadership or decision making, which are required as a moderator. I intend to conduct interviews of selected Government officials that are responsible (qualitative) for agricultural policy, being primed towards value and value-adding. Primary data generated through a pragmatic approach are "*potentially associated with a high level of validity*" (Guba, 2011), as data in such studies tend to be trustworthy and honest.

(Thayer, 1968) explains, the origin of the word pragmatism derives from the Greek word "pragma" (Hestir, 2011; 2016; Crivelli, 2004; Whitaker, 1996; Owen, 1965) discusses how Plato and Aristotle would use the term 'pragma'; to qualify a statement or action as true. (Malink, 2020), Yet (Peirce, 1878) established and developed the terminology 'pragmatism' or "*beliefs are guides to actions and outcome*"; or that which we associate terms such as "*instruments for predicting, problem-solving, and action*".

Whereas (Tashakkori and Teddlie, 1998) explains the most advantageous "*philosophical and/or methodological approach*" should be chosen by the researcher to investigate the phenomenon (Dewey, 1891) argues "*unpractical ideas are to be rejected*". Pragmatism identifies utility as a method of empirical inquiry and analyses, whereas metaphysical concepts such as "*truth, feeling and reality*" are suggestive, contentious and are dismissed (Goles & Hirschheim, 2000). (Patton, 2002) suggests pragmatism looks at the "*complexities of the real world*" as these are not static, often changing. Whereas (Creswell and Clark, 2011) argue pragmatism dismisses the interpretation that "*function of thought is to describe, represent, or mirror reality*"; (Lincoln, 1990; Rossman and Rallis, 2003) point out that pragmatic methods offer "*unique application*" for new knowledge based on experience. (Lincoln et al., 2011) argue "*scholars have drawn on the epistemology*" influences that pragmatism offers "*justified belief and opinion*" with practical successes.

(Gretchen & Rallis, 2003) argues the point, pragmatism applies "*conceptual and practical tools*" which provide in many ways "*knowledge about the world*" and solve certain *research phenomena*; (Yvonne, Lynham & Guba, 2011; Kuhn, 1970; Creswell & Plano Clark, 2011; Guba, 1990) point towards the relationship of the "*knower and the known*". However, (Thomas Kuhn, 1970) explained that a pragmatic point-of-view would be one that "*discuss shared generalizations and beliefs*". (Creswell, 2009) argues such a description can infer elements or specific factors that complement a pragmatic approach or "*shortcuts to produce good-enough solutions*", not always optimal but straightforward; as sufficient practical methods, often require trade-offs when problem-solving. A practical approach or paradigm expressed as a heuristic, this word is Greek in origin translated as "*learning through discovery*" (Abbott, 2004), (O' Connell, Clancy & van Egeraat, 1999) the "*blueprint*" is the utilization of heuristic frameworks that are examined for "*potential implementation*" (Porter, 1998).

3.6 Deductive & Inductive Approaches

(Saunders et al., 2012) explains that both “*deductive*” and “*inductive*” research approaches are often employed, either individually or together if the researcher has chosen a mixed-method research approach. These two presents two different philosophical foundations, (Morse & Mitcham, 2002) deductive research theory and begins with a “*strong theoretical footing*” (Danermark, 2001; Hyde, 2000); and is supported by “*theoretical knowledge*” (Johnson, 1996) and “*theory testing processes*” established “*prior to empirical research*” (Kovács and Spens, 2005). Deductive research concentrates on for example measurements and the development and “*testing of formal*” theories (Hirschman, 1986; Maxwell, 1996), which often comprise of hypothesising statements; whereas, inductive theory concentrates on the development and understanding “*substantive theory*” (Mello and Flint, 2009) of the phenomenon.

(Spens & Kovács, 2006) argues, the deductive approach “*starts with a few axioms*” statements that are self-evident or have been established as true or “*inferred from the nature of the axioms*” can provide guidance to comprehend the phenomenon, deploying a formal style or an “*established testing*” systems (Kirkeby, 1990) which would measure an outcome or a “*specific instance*” that are current with existing theories pointing towards a deductive research approach (Hyde, 2000); by examining and studying “*known theories*” on and around the chosen phenomenon. (Taylor et al., 2002) points out, a combination of “*experiments and statistics*” are factors in the development of “*scientific evidence*”; formally established ‘deductive research approach’ and processes must comply to “*general theoretical laws*”; on the collection of data, preselected testing methods are used to ensure, “*whether the theory applies to specific instances*” (Hyde, 2000). The formation and development of the conclusion should clearly explain and inform on the “*corroboration or falsification*” of the results, after processing of the data (Arlbjørn and Halldósson, 2002).

(Peter and Olson, 1983) argue, deductive research has the potential of developing a series of questions from “*prior knowledge*” or study that can ‘hypothetically’ “*constitute new knowledge*”. (Mentzer and Kahn, 1995; Na’slund, 2002; Svensson, 2001; Arlbjørn and Halldo’rsson, 2002) propose the idea that a deductive research approach is quite often selected or chosen as a “*predominant research approach*” for global logistics and supply chain research.

(Kyngäs, 2019) argues, inductive research can be an ideal application or method of analysis when limited or “*partial, unstructured or insufficient knowledge*” is known or available to the researcher. (Creswell, 2012) explains an ‘inductive’ approach allows the research to observe unstructured social or human issues and record people’s experiences and possible linkage to the phenomena from an “*alternative theoretical and practical perspective*” (Holloway and Wheeler, 2012).

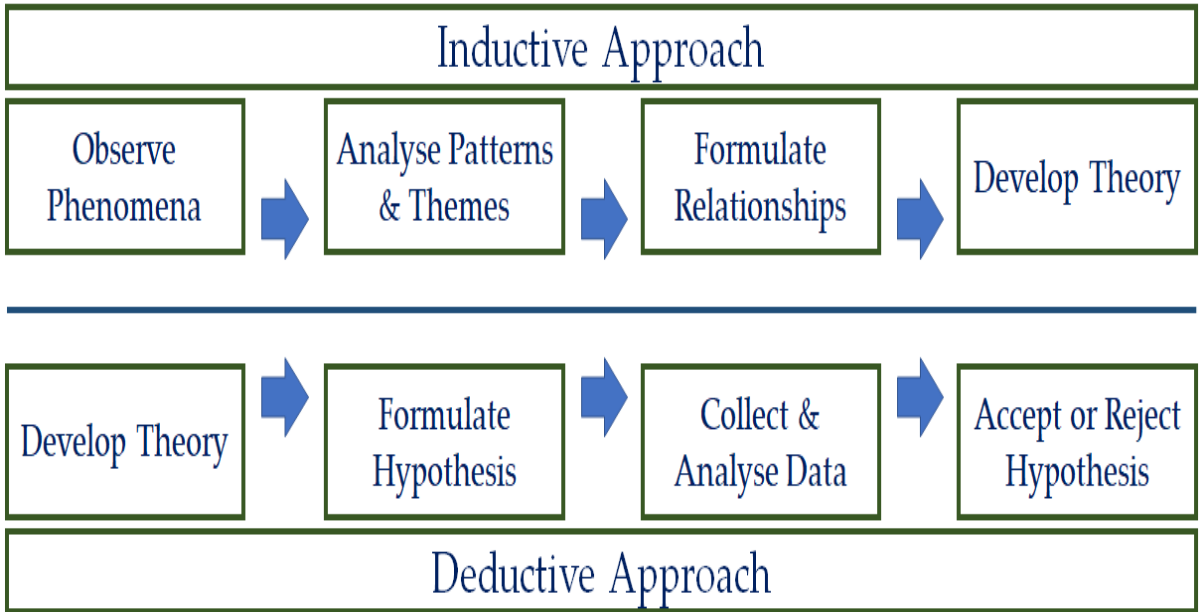
(Glaser and Strauss, 1967; Strauss and Corbin, 1998) argue inductive theory generate “*intricate subsets of information*” or datasets as these “*nature of personal experiences*” (Denzin & Lincoln, 1998, 2005) and insight are unknown from the very beginning. Data collected consists of observations, individual or group interviews; often planned group discussions, (Golicic et al., 2005) argues, datasets are labelled as “*categories, themes, dimensions, or codes*” the overall intention of “*underlying understanding meanings in human interactions and relationships*”. (Miles & Huberman, 1994; Patton, 2002); learning from a cultural aspect or personal belief or understanding of how activities are accepted and described by the individual (Collis and Hussey, 2009).

(Iovino & Tsitsianis, 2020) explain, inductive research tends to start from the bottom-up, the “*individual occurrences*” and detailed observations and measurements combined with participants views and experience around the phenomena, can provide broader substance and potentially. (Creswell, 2005) “*generate theory interconnecting*” opportunities through exploring “*themes and patterns in the data*”, ultimately assisting in the development of the arguments (Prince & Felder, 2006).

(Saunders et al., 2012) explains deductive as the “*development of a theory*” through means of planning, a strategy of controlled events that are empirically observed and measured. Whereas and inductive is absent of theory, yet through observation, collection and analysis of data conclusions are proposed and developed (Collis and Hussey, 2009). The research shall follow an inductive approach.

Table 3. 2 explains and describes the strategic flow of tasks or events for both deductive and inductive approaches.

Table 3. 2
Strategic flow of tasks for Deductive and Inductive Approaches



Deductive and Inductive approaches
Sources: Adapted from (Cavana et al., 2001)

3.7 Qualitative Approach

(King et al., 1994) argues that *"non-statistical research"* has the potential and often can provide highly reliable results, to the research as long as the *"rules of scientific inference"* can be found in quantitative research are imposed. (Becker, 1970) suggests quantitative research that deploys an open-ended question mind-set, (Gilbert, 2009) explain this as *"understanding the nuances"*, which encourages a *"freedom to explain and identify causality"* from a personal perspective or point of view that the respondent is engaged in (Hallett, 2014; Lichterman and Isaac Reed 2014; Katz 2015). (Denzin & Lincoln, 1998; Patton, 2002; Wolcott, 1994) suggest qualitative research aim through *"purposeful sampling"* to study people's lives, through communication with a small number of individuals or groups of peoples' or in the researchers case a select group of government officials within the agricultural ministry; that can offer or provide a *"wealth of detailed information"* as described by empiricism *"through experience"* in the form of a qualitative interview.

Open-ended questions are presented in a descriptive format, and candidates are encouraged to elucidate on their personal *"participants' experiences"* and how these *"influences people's actions or interactions"*. Interpretation and meanings are assigned and linked to the experiences that are observed or explained or discussed on the phenomenon that is being studied. Open-ended responses or the lack of a process to answer any of the questions in a certain format is meant to encourage those taking part in the questioning to 'feel' relaxed and explain the *"world as it is seen and experienced"* from their perspective. Their interactions and understanding as they see it, this assists the researcher to avoid any predetermining outcomes. However, (Kalof, Amy, and Dietz, 2008) argue that a 'qualitative' approach to research phenomena is encapsulated within a series of elements that embrace *"cultural beliefs and personal experiences"*; and meanings. Moreover, (Gordana, 2011) argues that such an approach is *"inherently unscientific"*; whereas (Hood, 2006) claims rhetoric is subjective and *"words are intrinsically less precise"* suggesting the potential or outcome to be misunderstood or biased.

3.8 Quantitative Approach

(Creswell, 2003) explains quantitative research often begins with an overview of the literature, that is considered to be linked to a potential problem statement or phenomenon, from which the *“formation of a hypothesis”* is constructed supporting the overall research design. (Leedy and Ormrod, 2001) argues, often, quantitative research is typically numerical *“seeking explanations through predictions”* is independent of the researcher who has a desire to *“establish, confirm, or validate relationships”*; and quantitative research can be a ‘driving force’.

Existing theories combined with *“inquiry and alignment methods on statistical data”* are used to predict and explain areas which might support or invalidate linkage to the phenomenon or the problem statement; with the purpose of *“creating new knowledge”* that can contribute to theory or *“alternate knowledge claims”* (Creswell, 2003). However, (Bold, 2001) explains quantitative research is a process, a combination of *“strategies, inquiry correlation and interpretation”*; each of which has specific aims or goals such as the collection of information from instruments, production of surveys, analysis of statistical data (Cooper and Schindler, 2001).

(Creswell, 2002) argues ‘Posteriori’ knowledge, found, or identified through independent theory, external evidence originated through the use of mathematical models or another form of empirical methodology; such as tautologies or through inference or pure reason or that which is *“avoid of reliant experience”*, personal insight and knowledge. Posteriori information, data and facts rest on empirical evidence and is considered the *“theoretical underpinnings”* for quantitative research (Brown, 2005).

3.9 Mixed-methods Approach

(Guba, 1990) argues, research methods are elements of “*basic sets of beliefs that guides action*” often expressed as philosophical traditions or prevailing paradigm that influence which research method is selected (Frankel et al., 2005). (Campbell and Fisk, 1959) explains, the opportunity to develop a dynamic research approach that would highlight data captured from two unique philosophical methods ‘qualitative and quantitative’, which when used together are commonly known as ‘mixed-methods’ shown in table 3. 3; that was first introduced as “*multiple operationalism*” that took a more comprehensive ‘pragmatic’ view and approach to research phenomenon (Bentahar & Cameron, 2015). (Johnson, Onwuegbuzie & Turner, 2007) point out that (Denzin, 1978) suggests researchers can identify multiple “*opportunities within the research design phase*” that can employ a systematic triangulation approach for the conclusion to support or not, the research questions. Moreover, triangulation presents two distinguishable styles “*within-methods triangulation*” that concentrates primarily on either “*multiple quantitative dominant or multiple qualitative dominant*” approaches suggesting that one of the two chosen methods would have a ‘dominance’ or direction of research within the dataset or a design to focus on either more of one than the other. The selection of the “*pure qualitative, qualitative mixed*” (Denzin, 1978) approach would look at understanding the dynamics of Government agricultural policy provision and how these relate to actual progressive value adding or improvements in the production of rice.

Table 3. 3
Selected qualitative approach

Three Major Research Paradigms, Including Subtypes of Mixed Methods Research					
Pure	Qualitative	Pure	Mixed	Quantitative	Pure
Qualitative	Mixed			Mixed	Quantitative
Qualitative Dominant		Equal Status		Quantitative Dominant	

(Johnson, Onwuegbuzie and Turner, 2007)

3. 10 Interview and Methods

(Golicic and Davis, 2012) argue that, "*research in logistics and Supply Chain Management has been heavily criticized*" due to a reluctance on research diversity, often selecting (Boyer and Swink, 2008) quantitative through a predesigned survey close-ended set of questions, that are deployed through different means such as email, direct mail or via a social application to the respondent. Alternatively, a qualitative interview such as a one-to-one or group setting offering open-ended questions that might be "*more appropriate for the research question*".

3. 11 Crosse-sectional Methods

(Lavrakas, 2008; Riegel et al., 2010) argue cross-sectional research is identified as "*observational in nature*" and is a "*collection of a descriptive dataset or a snapshot*" (Bowling, 2009) of recorded information of the participants within a population of interest (Prentice et al., 2011) at a specific point in time or during a process (So et al., 2013).

3. 12 Data Collection & Data Analysis Methods

Davis et al., 2011) argues the "*interpretation design*" phase is where the research brings both 'qualitative and quantitative' datasets together, both of which has 'equal' weight for evaluation and analysis. (Tashakkori and Teddlie, 1998) points out the primary datasets should be designed to "*elicit critical process information*" and where possible show "*add value*" to the datasets from the respondents of the interview and what will be provided from "*insights gained from the interviews*" (Burgess et al., 2005). The deployment of a qualitative approach intends to provide new knowledge to the global supply chain management discipline.

3. 13 **Research Design & Strategy**

(Burgess et al., 2006). However, (Ellram, 1996; Naslund, 2002; Taylor and Taylor, 2009; Boyer and Swink, 2008) argue scholars should examine the significance of the chosen methodology, especially when looking at specific supply chain phenomena. A broader approach or view to how the research might look from competing or opposing sides of the phenomena specifically when we look at the proposed research question and try to understand how both moderators and mediators work in tandem or not.

(Golicic et al., 2005) explain, pragmatic research philosophy, practical concepts or general ideas usually "*dictates the research method*" and again the reason for choosing to look at Porter's value chain theory (Tashakkori and Teddlie, 1998) points out the "*philosophical or methodological approach*" that has been shown to work or satisfy the research taking place is generally adopted. However, (Davis et al., 2011) proposes pragmatic research can employ a qualitative "*separate*" approach, or a "*combined*" mixed-method approach (Kovacs, 2006).

(Creswell, 1998) explains a qualitative approach is often an initial starting point, the research process looks at generating a "*detailed description of the phenomenon*" specifically if the phenomena in question is "dynamic or complex" (Pilkington and Meredith, 2009); whereas, a mixed-method or balanced approach seeks to "*provide a suitable framework*"; that incorporates data collection and supports this with description, as well as a methodical step-by-step approach (Golicic et al., 2005).

(Ebneyamini & Sadeghi Moghadam, 2018) argues, when researching and deciding on a specific methodology, three factors should be considered. First, what type of questions were prepared and will be asked, second, what extent of controls and behaviours are in place and finally, what degree of concentration is there on modern-day occurrences as opposed to historical events (Yin, 2009).

Table 3. 4 demonstrates the generally accepted five (5) key research methods, identified as experiment, interview, archival analysis, history, and case study (Yin, 2009). As well as the relationship to the three conditions which are: “forms of research”, “requires control of behavioural events”, and “focuses on contemporary events”?

Table 3. 4 Relevant Situations for Different Research Methods

Source: Adapted from (Yin, 2009)

Method	Form of Research	Requires Control of Behavioural Events?	Focuses on Contemporary Events?
Experiment	How, why?	Yes	Yes
Survey	Who, what, where, how, many, how, much?	No	Yes
Archival Analysis	Who, what, where, how, many, how, much?	No	Yes/No
History	How, why?	No	No
Case Study Interview	How, why?	No	Yes

3. 14 Research Questions & the Choice of Strategy

The research strategy and research question must have an alignment towards the chosen phenomena, selected research questions must be clear from the start to ensure the right questions are asked, examples would be a question starting with '*what*' suggests the researcher is taking an 'exploratory' position; which can develop into separate directions or approaches of inquiring such as "*how many*" or "*how much*" (Saunders et al., 2012). Moreover, "*how*" and "*why*" questions point the researcher to investigate as an example case studies or to be explanatory; whereas questions starting with "*who*" and "*where*" suggest specific '*fixed strategies*' (Yin, 2009) that are often found in interview designs.

3. 15 Case Study Research

(Yin, 1994) argues, a case study is an "*empirical enquiry*" that examines a modern-day or real-life phenomenon, frequently applied primarily with qualitative data. (Saunders et al., 2012) explain, a case study methodology has been extensively adopted for qualitative research. An examples can be through face-to-face interviews enabling researchers to "*conduct an in-depth exploration*" (Baskarada, 2021) of intricate phenomena, offering the possibilities to identify specific content through findings of various data sources. (Baxter & Jack, 2008) argues, when undertaking qualitative research exploration, the researcher has an opportunity to engage, implement and adopt a "*variety of lenses in order to reveal multiple facets of the phenomenon*" (Orlikowski and Baroudi, 1991).

(Yazan, 2015) argues that case studies are frequently used methodologies to research a specific subject; this could be an individual person, a group of people located or working in the same place or organisation, or a specific topic or phenomenon. (McCombes, 2021) explains, case studies are frequently used when exploring or investigating specifics in business research, social or indeed within educational domains. Case studies are useful as they allow the research to deploy multiple data collection techniques.

3. 16 Types of Case Study

The literature explains many different types of case studies; when defining the actual terminology, a case can be expressed as having a “*central role in the research process*”, which identifies context (Ragin, 1992). Case studies can range from a single to more complex multiple studies, whereas a single study might concentrate on the individual or a group. Moreover, a multiple case study might be more complex and broader, linking and focusing on several individual cases.

(Yin, 2009), explains a single set of rationales were developed to perform single case studies, and a second for performing “*comparative*” or multiple case studies. However (Yin, 2009) proposes that there is no difference in the methodological framework for either a single or multiple case study, but rather underlines the needs to identify the general case study design, pinpoint the aims and overall objectives and their specific attributes as being key data collection drivers.

(Saunders et al., 2012) explains, deployment of a case study strategy can be a valuable way to investigate existing theories and uncover new knowledge in the process. (Frohlich, 2002) argues, limiting the amount or number of case studies within a research thesis offers more significant potential for in-depth observation and data collection that can be critically analysed. Table 3. 5 specifies multiple types of case studies; the most suitable case study type for this research, “*organisations and institutions*”, outlines a list that illustrates similarity to those chosen. Indication suggests multiple case studies have a propensity for being additionally robust. Therefore, the researcher will use a multiple case study strategy, a set of three case studies will concentrate on identifying what value-adding processes are deployed across the agricultural rice value chain. How do these three separate entities: the Government, MRF and the banking sector, engage with each other to support value-adding creation for rice mill owners. Government ministers, senior directors and managers of these entities will be discussed.

However, (Sekaran, 2010) argues, exploratory research can be started when limited or sufficient details or facts are known; data is required when developing the initial conceptual framework. When engaging in an organisation or any institution, reading archival data and live documents or historical information and observing activity can provide greater insight into them. This is where deploying a case study philosophy can be very valuable (Yin, 2003). Therefore, the researcher has been able to conduct exploratory research in the form of face-to-face interviews, reading of archival data, had access to live and historic operational documents and observed actual operational activities prior to developing a conceptual framework that describes and summarises the components that make-up “*value-adding*” within the agricultural supply chain.

Table 3. 5 Case Study Types - Source: Adapted from (Robson, 2002)

Type	Attributes
Individual Case Study	Detailed account of one person tends to focus on antecedents, contextual factors, perceptions, and attitudes preceding a known outcome. Used to explore possible causes, determinants, processes, and experiences contributing to outcome.
Set of Individual Case Studies	As above, but a small number of individuals with some features in common are studied
Community Study	Study of one or more local communities. Describes and analyses the pattern of relations between main aspects of community life. Commonly descriptive but may explore specific issues or be used in theory testing.
Social Group Study	Covers studies of both small direct contact groups, for example families and larger more diverse ones such as original groups. Describes and analyses relationships and activities.
Studies of Organisations and Institutions	Studies firms, workplaces, schools, trade unions and departments. Many possible foci, such as best practice, policy and organisational issues, cultures, processes of change and adaptation. (Myanmar Government Agricultural department, MRF, (MADB) and (MEB).
Studies of Events and Relationships	Focus on a specific event. Very varied; includes studies of police-citizen encounters, doctor-patient interactions, specific crimes or incidents, studies or role conflicts, stereotypes, adaptations.

3.17 Case Study Selection Rationale

The research will explain the choice for each case study known as:

- Myanmar Government Agricultural department,
- Myanmar Rice Federation,
- Myanmar Agriculture Development Bank (MADB)
- Myanmar Economic Bank (MEB)

These four entities have contributed to this thesis; each entity works independently or can work on multiple government programmes, when required. However, at specific times each year, these four (4) entities must engage with each other to process and deploy government policy in supporting rice mill owners and other agricultural businesses. The reason for choosing a purposive sampling method was to select these specific participants who are responsible for constructing government agricultural policy, the deployment of these policies across the agricultural sector and issuing finance instruments to rice miller or farmers when government policy dictates.

Each case study is introduced in sections 3.16.1 and 3.16.2 and 3.16.3, offering general information captured from internet sources and journals; these entities present a silo style position on their own, but propose and share similar growth and agricultural development aims. The researcher has created what might be understood as a process used by all four entities, however (this is not confirmation of this process), just observation, when they work together, as demonstrated in Figure 3. 2. The explanation of what each entity might do when working together is as follows. Myanmar Government Agricultural department is responsible to design and implement agricultural policies that provide opportunities to those involved in agriculture or agricultural businesses. The scope of these policies are also directed to provide protection to the people of Myanmar, such as with the introduction food-safety measures, the use of herbicides, fertiliser or other chemicals used during the process.

Labour laws are also encapsulated around this industry, how people are employed, worker-right to mention just a few. The farmers themselves are protected from unscrupulous money lenders or loan sharks, here the farmers or rice mill owners can report such activities to the local government officer. Agricultural policies are created and or designed on a regular basis, often in conjunction with environmental laws that govern what crops can be grown, how farmland is managed or developed, what infrastructure can be built. Unfortunately, because of swift changed in agricultural policies, farmers and rice mill owners are usually the last to hear about them, this presents an ethos of scepticism for government initiatives. There are occasions where upstream farmers are engaged with rice growing and use fertilisers at a higher concentration as deemed fit. When the water is flushed into the stream fish farmers pay the price as the oxygen in the water is removed due to the fertilisers and the fish die.

MEB responsibilities have not change over the last two generations, this bank is responsible for all government disbursements, funds are transferred to specific financial institutions who are tasked to do what the government has said must be done. MADB, however, is what can be called an active player, here we see that farmers and rice mill owners must work with and through MADB when either collecting or accessing government support loans, looking to extend credit on farming equipment's or larger production milling machines. The transfer or sale of farmland, personal credit and debt records, Tax and VAT payments, fines are also conducted through this bank, in general, all documents are completed by the rice mill/farmers through MADB and reported back to the local government.

MRF, a government department that provides multiple support and training service to farmer and rice mill owners, as well as others involved in agriculture. Often, training resources are free and arranged by local government. Employees of MRF will be deployed throughout the year to work with farmers and rice mill owners, to continue training and development needs, provide advice, soil and water sampling as well as grain/strain grading prior to planning.

Rice Millers / Farmers, Myanmar people that are working either for a company a cooperative or are self-employed within the agricultural sector. All that said, the government (1) deploys both policy (4) and financial aid or assistance (2) through the active institution (3), where product controls and training (5) assist in possible value-added improvements upstream/downstream to farmers and rice mill owners (6). However, should (3) have any detrimental records on (6), no financial support is available, and the application process is stopped. At the same time, should (6) fail to repay any financial commitments back, then (3) is responsible to collect on behalf of the government (1), unless (6) has arrange the loan directly through (3), where the bank can claim both the land certificate and other assets as payment for the debt.

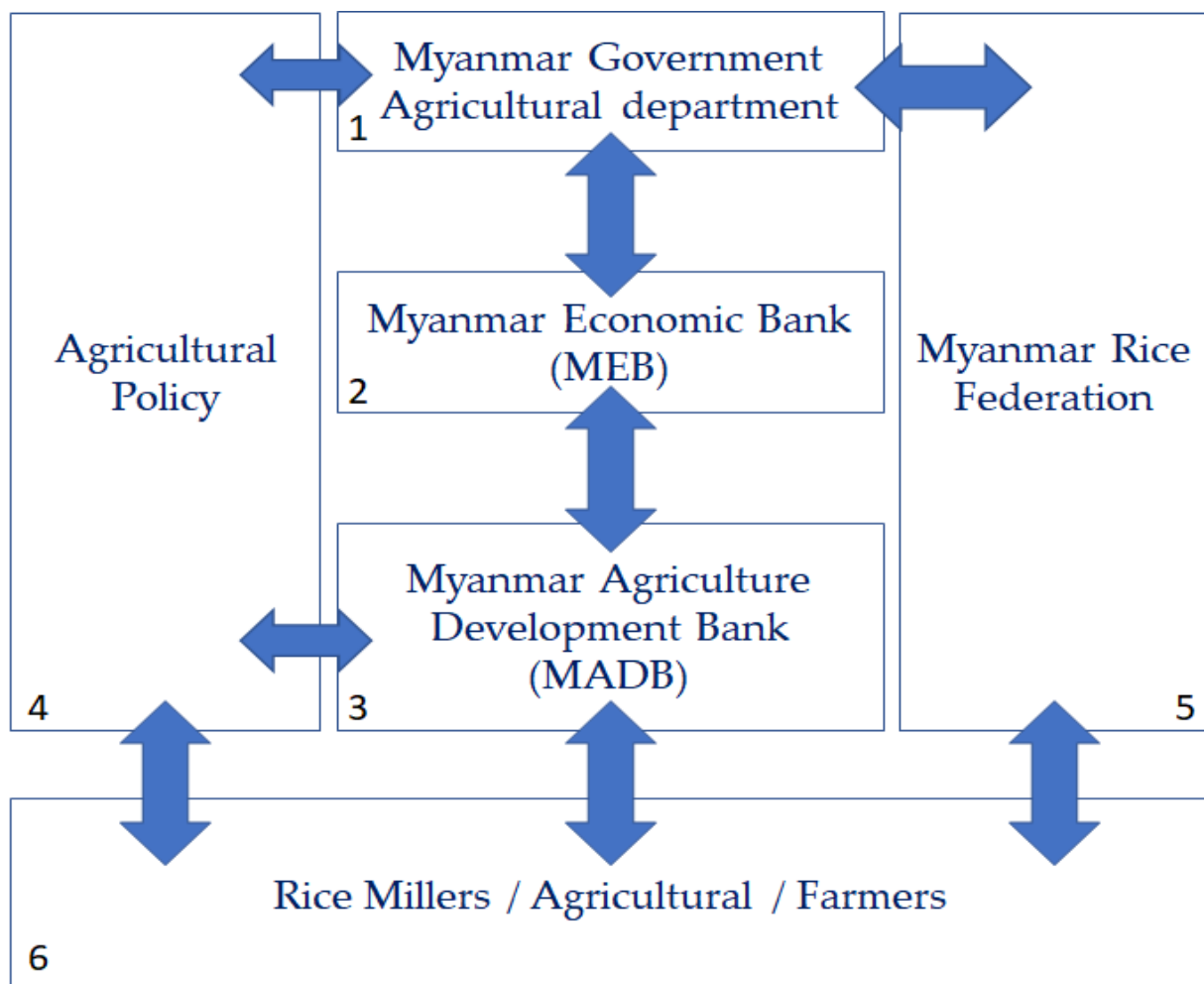


Figure 3. 2 Potential Government (policy) and Business (value-adding) Process

3. 18. 1 Case Study One - Myanmar government - Agricultural department

Is responsible for the creation of agricultural policies that are beneficial to the people of Myanmar. The economy of Myanmar has a nominal GDP of USD \$76.09 billion in 2019 and an estimated purchasing power adjusted GDP of USD \$327.629 billion in 2017. For the 2020 estimate, GDP per capita in Myanmar will be USD \$5142.20 in PPP per capita and USD \$1,608.50 in nominal per capita. This will make Myanmar one of the poorest countries in Southeast Asia (The World Bank, 2021).

The Myanmar government continues to create policies to enhance agricultural yields, however, multiple accounts of poorly design or implemented polices have been detrimental to the agricultural communities (ODA, 2021). Out of approximately 86 million hectares of land, 13 million are used for agriculture. Rice production ‘milled’ during 2020 accounted for 13,300 million metric tons or approximately 43% of gross agricultural production. (Naing, Kingsbury, Buerkert & Finckh, 2019) argue, these yield amounts position Myanmar as the seventh largest producer of rice in the world.

(USA.Gov, 2021) explains, there is roughly 2,000 different varieties of rice grown across Myanmar, these grains are classified using a yield calculation: White Long Grain (42.83%); White Short Grain (31.66%) and Broken Rice (24.42%). (MOALI, 2021) explains, approximately, 70% of the total population or 39 million people inhabits rural area, agriculture farming is their main livelihood throughout these regions contributing 30% of Myanmar’s national GDP. Government of Myanmar stated the modernization of the agriculture sector is a top priority as its contribution to the economy is substantial. (IRRI, 2015) explains, the Government of Myanmar engaged IRRI for technical assistance, to develop and deploy the Myanmar Rice Sector Development Strategy programme known as (MRSDS, 2015-2030) which was launched in May 2015. Prior to the COVID-19 pandemic, economic growth in Myanmar was projected to pick up to 6.3 percent in FY2019/20 and 6.4 percent in FY2020/21.

3. 18. 2 Case Study Two - Myanmar Rice Federation

A government department with a mandate to represents the private sector of the Myanmar rice industry. The strategic members of MRF are Myanmar Rice Miller Association (MRMA), Myanmar Rice & Paddy Traders Association (MRPTA), Myanmar Paddy Producers Association (MPPA), Myanmar Agribusiness Public Corporation Ltd (MAPCO), and Rice Farmers, Rice Exporters, Millers and Traders (RFREMT) (MRF, 2021). The objectives of MRF are to:

“Support and implement the sustainable development of Myanmar rice industry by optimizing the effective and efficient utilization of all the available resources in rice industry”.

“Report to parliament and state affairs committees, political parties, accordance with the State Constitution”.

Provide training and support to agricultural farmers and businesses engaged in the agriculture business (MRF, 2021). MRF is implementing and encouraging:

“Market-based mechanism to ensure supply and price stability”

MRF directly links foreign companies wishing to enter and trade or join-venture with a Myanmar national with a land certificate. MRF also provides training and education to farmers that grown foods such as grains and fruit and are responsible for engaging with the farming communities at the local level to provide support and guidance to sustainable growth and soil protection (MRF, 2021).

3. 18. 3 Case Study Three - (MADB) & (MEB)

Myanmar Agriculture Development Bank (MADB) plays an important role in supporting the governments agricultural sector. Currently, MADB accepts cash from [State-owned] Myanmar Economic Bank (MEB) and disburses the funds as loans to farmers of selected crops during harvest season (World Bank, 2021). MADB is currently the largest financial institution serving the rural areas and financing agriculture activities. At the end of 2012, MADB served 1.87 million customers, mostly farmers, and had a network of 206 branches. Attempts will be made to lower interest rates at the Myanmar Agricultural Development Bank (MADB) so that it is able to support the entire agriculture supply chain (ODM, 2021). Since its creation, MADB has played an important economic and social role by providing loans to a large segment of low-income households engaged in agricultural activities (World Bank, 2021).

3. 19 Interview Participants Profile

Table 3. 6 Interview Participants Profile

Position	Code	Gender	Reason for selecting	Level of Education / Years of service
Government	G1	Male	Can provide the Government position and its long-term view of the rice milling sector	Doctorate degree in mathematics. 25 years of service
Government	G2	Male	Can provide the Government position on FDI potential for value-adding opportunities.	B.Sc. from Rangoon Arts and Science University. 15 years of service
Government	G3	Male	Can provide a business perspective of the rice milling sector and its future	Military personnel. 30 years of service

Government	G4	Male	Can assist in explaining Government's value-adding growth strategy.	B.Sc. (Forestry) - M.Sc. (Watershed Management). 30+ years of service.
Government	G5	Male	International FDI view and perspective of rice milling sector.	BSc Agriculture. 20 years of service.
Director (MADB)	BD1	Male	Can provide a fly on the wall perspective of Government & business initiatives.	MBA Economics. 35 years of service.
Director (MEB)	BD2	Male	Perspective of Government & business initiatives within the rice sector as a whole	BSc (Maths) MBA degree from the Yangon University. 22 years of service.
Reginal Bank Managers	BM1	Male	Can explain how rice milling operations are conducted	MBA. 8 years of service
Reginal Bank Managers	BM2	Male	Can explain how rice milling operations are conducted	MBA 12 years of service
President	FD1	Male	View of the rice milling sector 'local and international' for Myanmar development	MSc Economics & Management. 6 years of service (MRF), 15 years+ with Government.
Director	FD2	Male	Rounded view of the rice milling sector 'local and international' for Myanmar development	MSc Economics & Management. 8 years of service (MRF), 10 years+ with Government.

Supervisors - all levels	RF1 RF2 RF3	Female	Can provide a fly on the wall perspective of Government policies working at ground level.	1. MRF - Senior Supervisor - MBA Graduate - 20 years working within the agricultural sector. 2. MRF - Supervisors – BSc. 15+ years working within agriculture. 3. MRF - Field Supervisors - 10+ years working within agriculture - not a graduate.
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3. 20 **Triangulation**

According to (Denzin,1978), there are three potential constructs which can occur when the researcher has decided to adopt the triangulation method "*convergence, inconsistency, and contradiction*" of which there are two methodological triangulation types "*simultaneous or sequential*". Morse (1991) explains that simultaneous triangulation might be selected when "*there is limited required interaction between the two sources*". Moreover, sequential triangulation would be a proactive or a preferred choice to specify when the research design recognises a unitisation of data, in the first stage, is necessary for "*planning the next method in a sequence*" that is, providing a structural method and plan of how the data collection will be done. (Jick, 1979) explains "*triangulation may not be suitable for all research purposes*". However, it is the researcher's intention to take advantage of deploying a triangulation approach that might increase the confidence of the datasets due to enhanced creative data collection opportunities and "*synthesis or integration of theories*" from the moderators. (Denzin, 1978) argues triangulation is a "*combination of methodologies*" which concentrates on "*corroborating and to support the results*"; on the same phenomenon, hence the reason for employing a triangulation approach.

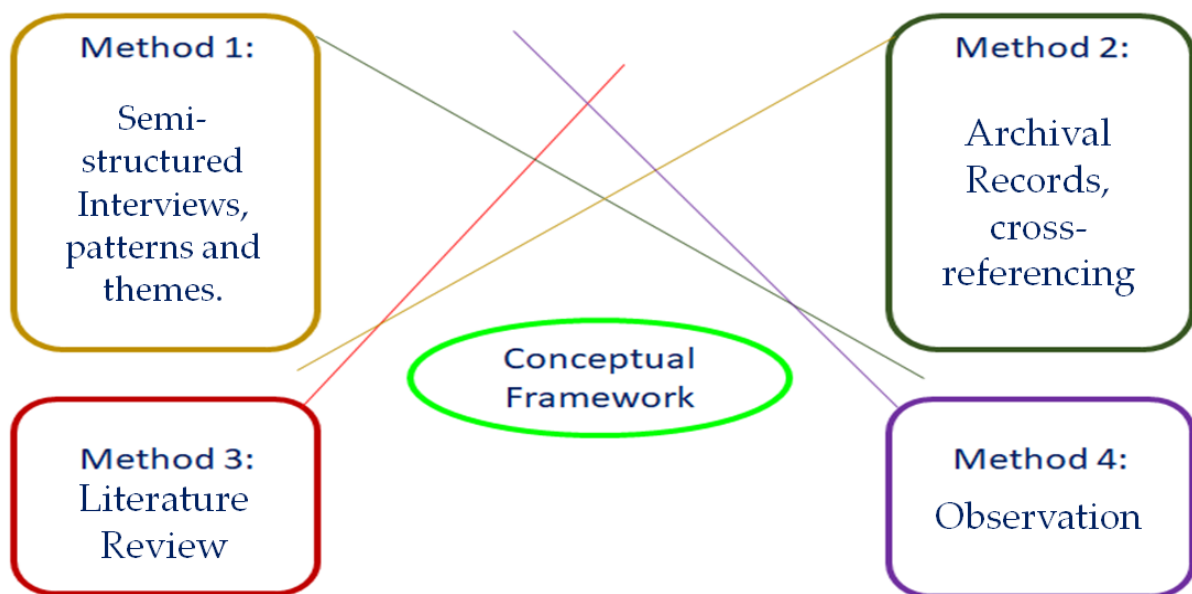
Triangulation method specifically 'convergent parallel design' identifies with a pragmatic inclusive philosophical worldview, of collected data, and through a "*comparing and contrasting*" analysis approach, reports the final results of the phenomena.

The triangulation method figure 3. 3 will be adopted to provide "*improved confidence*" of the final results (Sekaran, 2010) of the qualitative interview datasets. There are various types of triangulation methods which can be expressed as a collection of different types of data for analysis, there is also data triangulation that entails collecting assembling and collecting data from sources at various times. Researcher triangulation consisting of multiple researchers engaged in the collection of data for analysis, and finally, theory triangulation, a method of employing multiple theories or adopting certain perspectives which are then used to interpret a collection of data.

(Saunders et al., 2012) explains triangulation as "*more than one sources of data or multiples sets of different data*" collected from within a specific study to answer the phenomenon.

A semi-structured interview was delivered to each group, Government officials, the Myanmar Rice Federation director and managers, Bank directors and region managers. Combined with observational methods at the rice milling production location, to collect primary source data. It should be explained that the researcher was aware of the potential for bias or what can be described as 'government speak' or statements that ensure a balanced positive outcome rather than offering home truths to what is actually happening within the agricultural sector. The reason for choosing these three different groups was to ensure the researcher understood what government policies introduce value-adding or hindered such opportunities? The government is not controlling each rice milling business; however, they are responsible for introducing policy. The MRF has a broader scope, where they engage with the rice millers and industry, such as introducing FDI concepts, providing training, and linking suppliers with farmers and mill owners. Although all employees of MRF are government employees, they take a firm stand on deploying their methods and access to the betterment of those they work for.

Lastly, the choice to engage with the banking sector identifies how both governments policies and the MRF actually deliver value-adding opportunities to the rice millers, as the bankers see how the real-world of business works, explaining if rice millers are better off or not because of poorly drafted and implemented policies or a lack of direction or support from MRF. The first stage (method 1) of the triangulation was to engage in semi-structured interview between each group, secondly (method 2), to cross-reference between all three groups to clearly understand how they interrelate, or not. A deeper understanding and review of archival materials were shown on how these groups had worked together in past years. The datasets of method 1 and 2 have been critically reviewed against current literature, gaps (method 3) were found that will be discussed in detail within the thesis. Lastly (method 4) investigate and observe at each separate operation / location how each group works independently and directly and to identify which Government policies bring these three groups into alignment. Second, to assist with the triangulation process, a comparison was made on all three to see how these three groups works together or if they present a silo mentality, thereby working for their own benefit. Figure 13 explains the four method stages that are sequential and can lead to answering the research questions.



Adapted Framework which included Triangulation (Denscombe, 2003)

Figure 3. 3 Triangulation Method

3. 20 **Methodological Approach**

As mentioned in chapter three, table 3. 7 presents the proposed methodological approaches which the researcher will adopt. A qualitative method and a triangulation approach as explained above should assist the researcher in identifying and demonstrating where value-adding processes within rice mill production and operations stages are found or deployed as an opportunistic business move or due to moderator policies.

Research Aim: This study aims to develop and create a framework utilizing a multi-method approach, to identify 'value-adding activities' practised in Agriculture Value Chains (AVC). The overarching objective of this study intends to determine whether Government initiatives or strategic business decisions are working in tandem 'together' or are effective and useful in value-adding activities, which can enhance the economic potential for rice in Myanmar.

Table 3. 7
Methodological Approach

Research Objectives	Research Questions	Methodological Approach	Expected Outcomes
R. Objective 1: To examine which value-adding activities are practised within Agriculture Value Chains (AVC), Global Commodity Chains (GCCs) and Global 'Food' Supply Chains (GSCs)?	R. Question 1: What recognised value-adding activities exist for milled rice production within Agriculture Value Chains (AVC), Global Commodity Chains (GCCs) and Global 'Food' Supply Chains (GSCs)?	This section of research will be accomplished through an in-depth literature review process.	The research process will identify specific journal and articles that are directly associated to global value chains (GVCs), value adding factors and elements and methods used within the processing of grained rice within supply chain management.

<p>R. Objective 2: To explore whether an interrelationship exists and what mechanism there are between Agriculture Value Chains (AVC) and Global Value Chains (GVCs).</p>	<p>R. Question 2: What interrelationship or mechanisms exist between Agriculture Value Chains (AVC) and Global Value Chains (GVCs)?</p>	<p>The research will permit the researcher to identify and compare interrelationship mechanisms through the development and deployment of qualitative semi structured interviews.</p>	<p>The qualitative semi structured interviews should review what strategies the moderators have selected and why, (GVCs) current business model.</p>
<p>R. Objective 3: To investigate wherewith the Government or the agricultural 'rice' sector (ARS) understands the term 'value-adding', as a consequence of Government initiatives or as a strategic business action, by way of applying which 'value-adding' activities' at specific stages of the Agriculture Value Chains (AVC).</p>	<p>R. Question 3: What Government initiatives and business strategies advocate for which 'value-adding' activities (VA), for use within Agriculture Value Chains (AVC)?</p>	<p>A qualitative theoretical approach of current value-adding initiatives proposed by moderators.</p>	<p>This approach should identify what strategies have been deployed by moderators and are successfully employed by mediators, information that is not recorded as such in the current body of knowledge or found in the literature. Further development of the interview responses and data analysis could identify which strategies are working and those that are not. Linkage to current GVC theory can guide both moderators and mediators in the development of a theoretical framework that identifies 'potential synergies' between both groups.</p>

<p>R. Objective 4: To explore how the Government of Myanmar or NGOs initiatives or other 'external' actors are moderating on rice value-adding activities in Ayeyarwady delta, which encourage business meditating opportunities within Agriculture Value Chains (AVC).</p>	<p>R. Question 4: How Government and NGOs initiatives are moderating, and businesses are meditating on value-adding activities within the Agriculture Value Chains (AVC) of Ayeyarwady delta, Myanmar?</p>	<p>In-depth review of current value-adding methods within agriculture 'rice milling' and global food value chains literature.</p> <p>On the ground observations and comparison with global value chain theory and practice.</p>	<p>Which value-adding activities are clearly identified as strategic or important initiatives by moderators and which ones are recognised as being advantageous for mediators in creating added-value to the rice milling process?</p> <p>Those strategies or current processes which are advantageous will provide qualifiable research evidence.</p> <p>A clear understanding of the involvement of moderators and the outcomes that mediators encounter will be recorded.</p>
<p>R. Objective 5: To define and draw the conceptual framework, that encompasses all elements of the milling rice 'value-adding' processes within Agriculture Value Chains (AVC) and Food Supply Chain Networks (FSCN) in Ayeyarwady delta, Myanmar.</p>	<p>R. Question 5: What conceptual frameworks exists within milled rice processing and operations that conform to Global Value Chain theory?</p>	<p>Review global value chain / supply chain literature / compare final qualitative datasets. Identify which elements within the conceptual framework are directly associated to global value chain theory.</p>	<p>The final results should point out which value-adding methods and approaches offer advancements to mediators on the rice milling process and operation.</p> <p>Moderators can identify which policies are working or not working within the rice milling sector.</p>

3. 21 The design & development of the Interview process

(Saunders et al., 2012) argues that an interview process is a focussed conversation between either an individual or a group of people, with the purpose of gathering certain, specific, validated, and consistent data. (Turner, 2021) explains that *“interviews provide in-depth information”*, which can be particularly useful when speaking to those with *“experiences and viewpoints of a particular topic”*. (Creswell, 2007) explains, *“there are various forms of interview design”*.

Table 3. 8 provides a list of (Saunders et al., 2012) specific stages or steps that should be considered before starting to engage in pre-arranged interviews. (Neville, 2005) indicated that there can be various reasons why interviews can go wrong or not be as successful as the research would like.

Planning is required as those interviewees should expect a professional manner of delivery presented in a practical way or setting.

First, the initial concern would be if there is any noticeable or known *“biases”*, these needs addressing before the interview begins.

Second, the *“behaviour of interviewer”*, a professional etiquette and protocol should be evident.

Third, there should be a cordial discussion provided and give to alleviate any *“suspicion the interviewee”* might have, this can be achieved through a clear explanation of the requirements and justification for interview.

Forth, the *“conduct of the interview”* is vital to ensure timely responses, there should not be any unnecessary surprises during the interview process, that might irritate or cause concern.

Finally, all participants should be reassured of the *“confidentiality”* of the interview, this can be achieved through a document process or as simple as a verbal promise.

Table 3. 8

Problems associated with Interviews

Semi-structured Actions	Action taken by the interviewer
What preparation should the interviewer accomplish to ensure the willingness of participants to share the data?	The research has conducted a detailed literature review before starting the interview. (Chapter 2)
Is it advisable to share specific information with the interviewee?	A pre-prepared participant information document was provided to each interviewee, which explained the research objectives, aims and overall goals of the interview. (Appendix).
To collect data from the interviewee, is there a requirement to present a professional appearance throughout the interview?	All persons identified for interview hold senior positions in Government, MRF and the banking sector. (Robson, 2002) points out, when conducting face-to-face interviews, the researcher should adopt a similar dress code as those being interviewed.
Did you consider a safe, secure, and appropriate location to conduct the interviews?	The researcher agreed to meet each group at their work location; for Government officials, this was the DICA office, for MRF at the office building and at the central bank HQ building in Yangon.
What advanced preparation or steps were taken to commence the interview with confidence and purpose?	Several practice sessions were done to ensure the interview could be completed within the 45-minutes timeframe. Before starting the interview, the research cordially explained the purpose and graciously thanked each person for agreeing to be interviewed.
The researcher needs to engage in rhetorical questions - What concerns or clarification may the interviewee have?	To simply qualify what is known when answering the questions and reassert the confidentiality of the interview and respect for all information provided.
What clarification can be given to overcome any concerns?	The research assured all interviews that the questions would not be used to find fault or create any embarrassment for the people of Myanmar. All data collected would be correctly stored and is open for a full review before final submission to the university. Publication would be delayed until the end of the current election time, which is scheduled to be 2024.
What interview conditions will be suggested, and how will the research conform to this?	A printed set of instructions will be given to each interviewee that states: you do not have to answer any question if you wish, and you can stop the interview at any time.

What technologies will be employed to record the interview, and was this explained to each person?	The use of a mobile phone recorder was presented as the recording device, and each interviewee agreed (except Government) for this to be used.
What steps were take to ensure the interviewees' responses were not encouraged?	All questions related to the interview were corrected and approved by the PhD supervisors. The research prepared a rehearsal meeting to practice asking the questions in a neutral tone of voice as described (Easterby-Smith et al., 2012).
What general and personal information would be provided to the interviewees concerning this research's overall purpose and reason?	A general amount of information will be provided about the researcher and his reasons for this study. A pre-prepared participant information document has been provided to all interviewees that offer more in-depth information before accepting the invitation.

3. 22 **How the interviews were conducted**

During the early months of 2020, all potential participants were contacted to establish their consent to participate in the interview. A research description document was sent to each person that explains the overall purpose, the research aims and overall objectives. (Easterby-Smith et al., 2012) highlights the significance of forming a trust and confidence bond between the pursued interviewees and the researcher. The researcher was already acquainted with those working for the MRF. However, arranging interviews with Government officials was both problematic and required the adoption of patience. Through contacts at MRF, the directors of the banks were contacted, and this was only a matter of confirming the interview date for each face-to-face 'group' interview.

All interviews were conducted in English, and each interviewee was provided with a participant information sheet and the interview consent form for PhD research, all of which comply with the University of Salford research ethical policy. Finally, all data in all forms that were collected from the interviews were analysed using NVivo 12 software.

3. 23 **Sample Size for qualitative methods**

(Saunders et al., 2012) explains that a population can be considered as having “*specific characteristics*” of which a “*target population*” is identified for research. (Patton, 2002) explains a sample as “*a selected part*” from a larger size of a “*population or sub-group*” of a dataset. The researcher began preliminary research into the study of value within supply chains as an MSc procurement logistics and supply chain management student; the researchers submitted a dissertation concentrating on/within the same region and on the topic of rice.

There was a requirement to link with three specific sectors that are engaged in agriculture. Purposive sampling was chosen, considering that government ministers, government employees and bankers were invited to participate in this research.

Myanmar agricultural policies are designed through direct government controls ‘moderators’, whereas business ‘mediators’ involved in rice milling activities must adapt and comply with these rules, regulations, and laws set out by the government. These three selected group of ‘actors’ are not directly involved in actual ‘rice milling production or operations’ but have an interest or legal responsibility to those involved in rice milling and production.

The overall sentiment and compliance of the interviewees to engage were that this research could assist in the development or improvements of current value-adding opportunities directed towards rice milling operators. Lastly, the study conducted at the MSc level, data unearthed from the recent interviews, observations at the mills, and the literature review provided substantial amounts of information, which was critically analysed and reviewed to answer the researched phenomena.

3. 24 Limitations of the Research Methodology

(Collis & Hussey, 2009) best practice instructions were adopted for these interviews, arguing that there are potential limitations regardless of the advantages that different research methods offer. One such constraint or drawback with qualitative research is the element of bias. When presenting an interviewee with specific questions, it is quite reasonable to expect that this person does not wish to look foolish and want to answer the questions positively, even if this means neglecting to provide accurate data (Feldman, 2004). Hence, the direction to interview those selected was a calculated attempt to speak with those that have direct responsibility for agricultural policy and those involved with deploying external financial assistance and technical support to rice mill owners..

3. 25 The Pilot Study

(Saunders et al., 2012) explains a pilot study as a pre-test questionnaire to provide and show possible errors and to "*reduce the probability of interviewees having difficulties in responding to the questions*". (Bells, 2010) explains the fundamental value of preparing and deploying a pilot questionnaire, as this action can reduce or limit unforeseen problems that might arise during the actual interview. Whereas (Prescott & Soeken, 1989; Lancaster, Dodd, & Williamson, 2004; Eldridge et al., 2016) argue that a pilot questionnaire practice precedes the actual interview of those selected to engage in the research. (Andersson, & Kairamo, 2011) argue post-pilot tests permits the researcher to make improvements or adjustments to the question. The selected questions were generated from both the literature review and a general understanding of value-adding opportunities correlated to Government policy. The researcher was able to conduct two pilot interviews with both Salford Business School PhD supervisors to determine and ensure each question's suitability as an interview question.

Improvements and suggestions were offered, such as adjusting the tone of voice and speed of talking when delivering each question. Two more pilot interviews were

conducted in Myanmar with senior academics, ensuring that the style and tone were acceptable to Myanmar culture. Overall, the feedback of the four pilot interviews provided an opportunity for the researcher to adjust several questions thereby focusing the outcomes on academic theory pointing directly to the research question and objectives, avoiding general points of view from the participants. It became evident that some questions invited a yes or no response and this would not have followed a qualitative approach, but rather a quantitative one. These questions were rewritten. Once these questions were adjusted, actual interview dates were confirmed with the interviewees.

3.26 Validity and Reliability

(Saunders et al., 2012) explains a research philosophy depends on how the researcher develops a plan when collecting data, how the data will be captured, recorded and what development of knowledge might be considered for implementation. (Collis & Hussey, 2009) explain validity as a method to “*ensure the accuracy of the data and finding*” and is addressing the most relevant questions at any given moment or situation (Cavana, 2001). The researcher identified which method of choice was used in the collection of data. As a result, in this empirical research on Exploring the factors and attributes of value-adding activities and their impact on moderators and mediators within Rice Value Chains in the Ayeyarwady Delta, the researcher was able to conduct a total number of fourteen (14) interviews. Five government officials, five government employees, two senior bank directors, and two regional bank managers have either direct responsibility for policy creation, deployment, training, or financial support. This excludes the four pilot interviews, as shown in section 4.12. A detailed breakdown of each case study is provided in sections: 3.16.1 and 3.16.2 and 3.16.3. The interviews were conducted from December 2020 through January 2021.

3. 27 Justification of the chosen philosophy and approach

To answer the research question and objectives, a pragmatic approach was selected to understand what 'value-adding activities' are practised in Agriculture Value Chains. A consideration for a positivist approach was looked at but this is based solely on observable facts and does not give any credence to non-observable entities such as feelings and values. Looking at realism and interpretivism or the development of the theory of knowledge as alternatives, neither were chosen as the intention to research what is happening now not what might or could happen in the future. (Takahashi & Araujo, 2019) explains when engaging in identifying "richer knowledge" of the phenomenon selecting a qualitative approach provides increased opportunities and information to review and digest, this was chosen.

Choosing to deploy in an inductive qualitative philosophy entail generating theories from research (Mello and Flint, 2009), this gave the researcher an opportunity to find out more about what the knowers know. A case study strategy was chosen as purposive sampling was used, considering that government ministers, government employees and bankers were invited to participate in this research. The participants of these three case study groups are responsible for agricultural policy, deployment of policies and finance instruments across the agricultural sector (Saunders et al., 2012).

Choosing to use a mono method to capture the interview responses so as to analyse participants' views and opinions when answering the semi-structured interview questions. A Cross-sectional Time Horizons was chosen, research was collected during December and January 2020 and 2021. The researcher used pattern-matching techniques and created thematic groups of information taken from respondents A systematic review of the materials found similarities and phrases. A triangulation methodology was employed to enhance the integrity and reliability of the research findings.

3. 28 **Chapter Summary**

In summary, chapter three explores and examines a variety of distinct types of research philosophies, and the effect or influence on different research methodologies has been described and supported with numerous explanations. Using a range of appropriate research lenses, the researcher has chosen a qualitative interview and case study research approach or strategy. In addition, a detailed breakdown of the case study groups, such as the interview participants from both government departments and financial institutions who participated in this empirical study, is shown in the form of a profile. Moreover, a triangulation method was conducted on the primary datasets to ensure every single method or approach conformed to sterility and to enhance and better develop the findings' legitimacies and reliability. Multiple document assessments and critical evaluations were employed and cross-referenced with physical observations at specific locations. Lastly, the researcher applied the findings from the literature review to justify the choices to employ the chosen research philosophy and methodology in order to reveal several facets of the phenomenon.

Chapter five introduces a detailed construct of the case study groups, their functions, and years of service within government and the private financial sector who participated in the empirical research study. Selected literature explains several methods for qualitative data analyses, such as patter-matching. The preferred data analysis approach and techniques were employed, and various documented data analysis procedures were extended across the study.

Chapter Four

4. Data Analysis and Research Findings

4. 1 Introduction

A series of face-to-face semi-structured interviews were conducted on separate occasions to understand how the interview participants understood the term value-adding (VA), value-adding-processes (VAP), competitive advantage (CA) and supply chain networks (SCN). Secondary data was complemented with critical review and analysis of articles and journal papers; and on three occasions observation of actual policy making meetings were conducted. A triangulation of all primary interview datasets was performed that point directly to answering the research question.

4. 2 Research Findings

Table 4. 1 demonstrates which elements are linked to specific sections of the literature review. Moreover, the additional two columns added to the table are literature review & citations and research findings & points of clarity will directly indicate which well-known and prominent authors who are recognised as working within the academic area of food value adding supply chain networks. Their published works contributed to the overall viscous substance and design that ultimately offered guidance to answering the research questions.

Table 4. 1

Research Aim & Research Findings Links

Research Objectives	Research Questions	Literature Review & Citations	Research Findings & Points of Clarity
R. Objective 1: To examine which value-adding activities are practised within Agriculture Value Chains (AVC), Global Commodity Chains (GCCs) and Global 'Food' Supply Chains (GSCs)?	R. Question 1: What recognised value-adding activities exist for milled rice production within Agriculture Value Chains (AVC), Global Commodity Chains (GCCs) and Global 'Food' Supply Chains (GSCs)?	Drucker (1955); Ansoff (1965); Andrews (1971); Porter (1980); Porter (1985); Lanning and Michaels (1988); Davenport and Short (1990); Hammer (1990); Hamel and Prahalad (1989); Mintzberg and Quinn (1991), Kay (1993); Davenport (1993); Hammer and Champy (1993); Porter (1996); Cousins and Marshall (2000); (Mahul and Stutley, 2010); (Jia et al., 2014); (Laengle et al., 2017); (Cho, Kyaw & Khaing, 2019); (Radanielson et al., 2019) and (Reyes, Agbon, Mina & Gloria, 2020)	<p>The literature explains how value is understood and where value can be created within specific stages of a process or supply chain.</p> <ul style="list-style-type: none"> - A linear process of events or stages can be measured. - Each stage can identify if a value-adding process can improve efficiency by adding or removing a stage within the total processes. - Value can be identified or created at each stage. - Improvements in efficiency within the production systems can enhance profits. - Process controls - Packaging to Safety standards - Labelling which conforms to regulations. - Store and temperature controls – Logistics.

<p>R. Objective 2: To explore whether an interrelationship exists and what mechanism there are between Agriculture Value Chains (AVC) and Global Value Chains (GVCs).</p>	<p>R. Question 2: What interrelationship or mechanisms exist between Agriculture Value Chains (AVC) and Global Value Chains (GVCs)?</p>	<p>(Forrester, 1958); (Porter, 1985); (Houlihan, 1988) ; (Stevens, 1989); (Davenport, 1993); (Cooper, Lambert, and Pagh 1997); (Cox, 1999); (Thorelli, 1986); (Croom, 1998); (van Hoek, 1998); (Mentzer et al., 2001); (Ho, Au & Newton, 2002); (Lee, Padmanabhan & Whang, 2004); (Power, 2005); (Attaran & Attaran, 2007) and (Christiansen, 2015);</p>	<p>Global Commodity Chain or Global Value Chains and Global Agricultural Chains are where economic controls and transactions must be maintained to establish value.</p> <p>- Supply Chain Management (SCM) should be viewed as a "strategic element" of the organisations, which must strive for competitive advantages.</p> <p>- Alternative terms: distribution channels', 'network sourcing', 'supply pipeline management', 'value chain management' and 'value stream management'.</p> <p>- Supply chain or Network has the potential of "reduced friction, fewer barriers.</p>
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<p>R. Objective 3: To investigate wherewith the Government or the agricultural 'rice' sector (ARS) understands the term 'value-adding', as a consequence of Government initiatives or as a strategic business action, by way of applying which 'value-adding' activities' at specific stages of the Agriculture Value Chains (AVC).</p>	<p>R. Question 3: What Government initiatives and business strategies advocate for which 'value-adding' activities (VA), for use within Agriculture Value Chains (AVC)?</p>	<p>(Porter, 1990); (Psacharopoulos & Nguyen, 1997); (Arnold & Bell (2001); (Pathak et al., 2003); (Ravallion, 2007); (Mackill et al., 2010); (World Bank, 2012); (Alexandratos, Bruinsma, 2012); (Sonnino and Ruane, 2013); (LIFT, 2017); (European Commission, 2017); (FAO, 2019); (Hoang & Nguyen, 2020) and (Reyes, Agbon, Mina & Gloria, 2020)</p>	<p>Introduction of a National Agricultural Research System (NARS).</p> <ul style="list-style-type: none"> - Training and technical education with operational assistance programmes. - Training farmers in the use of chemical fertiliser mixing as part of the general agricultural programmes (GAP) - Investment Commission (MIC) has shown substantial FDI over the last three years. - FDI-for 'selected' rice Milling stages and Rice seed cultivation and chemical production. - Continued developments or 'new initiative' as part of the Export-Led Growth Policy. - Funding for agriculture released at certain times of the year. - Tax incentives on importation of agricultural equipment.
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<p>R. Objective 4: To explore how the Government of Myanmar or NGOs initiatives or other ‘external’ actors are moderating on rice value-adding activities in Ayeyarwady delta, which encourage business meditating opportunities within Agriculture Value Chains (AVC).</p>	<p>R. Question 4: How Government and NGOs initiatives are moderating, and businesses are meditating on value-adding activities within the Agriculture Value Chains (AVC) of Ayeyarwady delta, Myanmar?</p>	<p>(Croxton et al., 2001); (Mentzer et al., 2001); (Gereffi, 2005); (Attaran & Attaran, 2007); (Porter, 2008); (Olsen & Aschan, 2010); (Cohn, 2012); (Karlson et al., 2013); (Lee & Gereffi, 2015); (Dujak, 2019); (Queiroz & Fosso Wamba, 2019); (Khatri Das, 2020); (IRRI, 2020) and (Winter, 2020)</p>	<p>WHO promotes a public health strategy or message to introduce a “fortification of rice with iron”.</p> <ul style="list-style-type: none"> - Government introduce Co-operative Supply chains management Networks in each region. - Integration - increasing competitive advantage across the local supply chain. - Applications of both physical distribution and materials management? - Introduction and training in Value Chain Management - Costs reductions. - Strategic management, logistics and marketing for improved value creation. - 3Rs “responsiveness, reconfiguration and resilience. - Inclusive management system, which synchronises coordination of strategic and tactical activities. - Access to Global Value Chains with Government support integrated logistical process. - FDI partnerships and “retail infrastructure” Consumers food protection and food safety standards / demands.
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<p>R. Objective 5: To define and draw the conceptual framework, that encompasses all elements of the milling rice ‘value-adding’ processes within Agriculture Value Chains (AVC) and Food Supply Chain Networks (FSCN) in Ayeyarwady delta, Myanmar.</p>	<p>R. Question 5: What conceptual frameworks exists within milled rice processing and operations that conform to Global Value Chain theory?</p>	<p>Jones et al., 1990); Lamming, 1993); (Cousins, 1994); (Womack and Jones, 1996); (Saunders, 1997); (Cox, 1998); (Anderson, Thomson et al., 2000); Kaplan and Norton (2001); (Gereffi and Lee, 2012); (Miemczyk et al., 2012);)Timmer, Erumban, Los, Stehrer, and de Vries, 2014) and (Crane, LeBaron, Allain & Behbahani, 2017);</p>	<p>Systems thinking and supply chain management. - Business system commercial / Value Supply Chain; buy-side vs sellside. - Generic strategies - - Competitive strategy. - Business process re-engineering. - Process redesign - Value alignment - Value gaps. - Value streams / identification and measurements. - Total quality management. - Continuous improvement. - Lean production - Value-add - - Value proposition - Value offering. - External resource management. - Rice Milling – Cleaning. – Grading. - Parboiling processing and packaging.</p>
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4.3 Coding

(Miles, Huberman & Saldaña, 2014) argue that researchers often introduce specific terminology to qualitative analysis such as short statements or phrases or explicit letters so as to introduce and assign and identify a method to capture and review of ‘knowledge’ in written or visual form, this comprehensive approach is known as coding (Saldaña, 2021). The researcher has introduced specific codes which refers to certain members of the Myanmar Government, government employees and private banking employees who have responsibilities in agriculture and decision-making processes for wholegrain rice cultivation.

4.3.1 Codes are identified as the follows:

Government Officer:	G1, G2, G3, G4, G5.
Myanmar Rice Federation Directors:	FD1, FD2.
Myanmar Rice Federation Supervisors	RF1, RF2, RF3.
Bank Directors	BD1, BD2.
Bank Managers	BM1, BM2.

4.4 Data Analysis and Organisation

The selected interview questions have been separated into two specific classifications: those being Value-adding (VA) and Value-adding Processes (VAP). (Creswell & Poth, 2016) argues that initial thematic groupings become apparent within the literature review, whereas thematic analysis is descriptive allowing the researcher to present a “*holistic picture or wider view*” of a complex setting, although (Castleberry & Nolen, 2018) point out that thematic analysis should be both “*systematic and thorough*”.

Moreover, (Braun & Clarke, 2006) argue thematic analysis employs methods to explain the reactions, replies or general statements gained from the participants.

After the data had been analysed and processed, specific thematic categories were identified, the data were partitioned accordingly to provide a wider view of possible information which could be considered ‘relevant’ from the study. This data is explained, through description, identifying what significant aspects or factors were found within the overall datasets. With this in mind the researcher has the opportunity to conceptualise a value-adding framework for ‘processing and operations’ of whole grain milled rice in Myanmar.

QSR NVivo 12® software has been utilised by the researcher to pick up on what is identified as either unique words or ‘industry jargon or known terminology’ use by both moderators or mediators as recurring terms or phrases, which were evident during the interview sessions. The QSR NVivo 12® software output provides for a composite description of the terms or phrases. The output was calculated to understand and ascertain the significance and relevance in understanding the phenomenon. The relevant composite description of the terms or phrases found with the thematic categories are expressed below:

Table 4. 2 Thematic categories

Thematic category: Interview Questions on Value Creation (VC)

Sub-category

- Value-adding (VA)
- Value-adding Processes (VAP)

Thematic category: Interview Questions on Value Chain Analysis (VCA)

Sub-category

- Competitive advantage (CA)
- Supply Chain Networks (SCN)

4.5 Interview questions

The interview questions were developed to answer the proposed research question and objectives that are found under section 1.1. The researcher prepared a series or list of sixteen interview question that were generated from the literature review.

As explained in Table 4. 1 the proposed methodological approaches, the procedure was to first pilot test these sixteen-interview question on four (4) selected people to confirm that these were acceptable questions and to gain insight and clarity on any unusual responses to them.

The interviews were conducted during December 2020 and January of 2021. The same sixteen questions were asked of the three case study groups that consists of senior Government officials, Bank directors, Bank managers, DICA directors and executives, MRF directors and MRF Operation managers. The process established four thematic categories as shown below.

Table 4. 3

16 Interview Questions

16 Interview Questions		
Thematic Category: Interview Questions on Value-adding (VA)		Factors pursued in the interviewee's responses on Value-adding and Value-adding processes
Subcategory Introduction of Value-adding Concepts	1. What is your general understanding of Value-adding within agriculture?	Decision-making.
	- Do you consider value-adding as an Expense or an Opportunity for the Government?	Operation models.
	2. Can you provide some examples for introducing Value-adding methods to agriculture, specifically wholegrain rice?	Skills
	- Do you look at local and international requirements?	Value-Creation
	3. Can you explain the importance of Value-adding in terms of agricultural training and education programmes	Investment
	- Do you see it as a business Expense or as a Government Opportunity?	Government incentives
	4. Would you agree with the statement that Value-adding methods are interrelated functions for business and Government?	Competitive Advantages
	- If so, can you provide some examples of this interrelation?	Funding Government Policy

		Value-adding systems.
Thematic Category: Interview Questions on Value-adding processes (VAP)		Value-adding methods.
Subcategory Introduction of Value-adding processes	5. In your opinion is there a need or requirement for agricultural farmers to employ Value-adding processes within their operations?	Traceability
	- If so, which ones would you consider important Value-adding processes?	Customer value
	6. Do you consider agricultural farmers have a lack of information on how to develop Value-adding processes?	Processes / Farmers / Employees / Miller's / skills
	- Do you see this as a Government responsibility? If not, what should be done to remedy this problem?	Government Policy Shared -Training & Development costs.
	7. Would you consider your approach to Value-adding processes as being reactive or proactive to market conditions?	Technology driven New Export / local Markets
	- If so, can you explain what policies are in place or under review?	Integrated Data-capture / barcoding
	8. Is there available and accessible funding arrangements for agriculture business loans to support the introduction of Value-adding processes?	B2B / B2C Grain loans
	- Do you see these loans as a Government incentive, or should Government avoid any kind of involvement?	Decision-making.

Thematic Category: Interview Questions on Competitive advantage (CA)		Factors pursued in the interviewee's responses on Competitive advantage and Supply Chain Networks
Subcategory Introduction and development of Competitive advantage	9. Can you explain how agricultural policy introduces the need for or supports the creating of a competitive advantage for wholegrain rice?	Government Agricultural Policies.
	- Are there some specific examples that you can identify where there has been a policy change?	Health & safety regulations G2G
	10. Do you consider the introduction of food safety regulations a Government necessity to develop competitive advantage for the wholegrain market?	Customer Focused. Buyer Power. Exports / local demand
	- Can you explain how food safety regulations are created or are these adopted from other countries?	Compliance with International norms / regulations.
	11. In your view should Government engage in the development of growing higher-yielding rice seeds which can alleviate poverty, or should Government concentrate purely on wholegrain rice for revenue?	Technology Imports / Export supply chains access. Exchange Rate
	- Can you explain how NGOs work to support Government agricultural policy, are there any overlapping issues?	Poverty Concerns / they remain as silos
	12. Do you consider it is the responsibility of Government to engage with business to craft agricultural policy or should Government take a Global view on agricultural policy?	Production / Measurement Supply Chain Networks

	- Can you provide examples of what local agricultural policies have been developed, are they working, do they support a competitive advantage for local farmers?	Infrastructure demands Training & development of value-adding / processing / local cooperative loans
Thematic Category: Interview Questions on Supply Chain Networks (SCN)		
Sub category Introduction and establishment of agricultural supply chain networks	13. Is it the policy of Government to establish agricultural supply chain networks throughout the country?	Poor Infrastructure.
	- Can you provide some examples of what has been done to develop SCNs, are there any NGOs or local business associations which are involved?	Inconsistent Agricultural Policies. Lagging R&D
	14. Can you explain how agricultural SCNs work within the Ayeyarwady delta, what policies or methodologies are employed by farmers in milling operations?	Lack training Foreign Currency difficulties Cost of inputs
	- Are there examples you can discuss which looks at upstream communications from the retailers either local or from international markets?	Local / International development. Lacking relationship with buyers
	15. Can you explain if the SCNs have increased or decreased agricultural transaction costs?	Business Expansion.
	- Out of these can you explain if opportunistic behaviours of rice-traders have been eliminated or even reduced due to Government policy or because of another reason?	Export drivers / buyer power

	16. What Government training or support is provided to the agricultural business sector to compensate for random environmental and major disruptive events within the SCN?	Education Real-time information
	- Can you explain what Government policies and actions can be taken or are taken when these 'random' events cause havoc within the SCNs?	Downstream / retail chains are affected / Government has limited resources.

4.6 Explanation of the Interview Questions

The aim of these questions is to establish a linkage between the moderators and mediators and to understand what constitutes government agricultural policy for rice. Furthermore, to explore the level of knowledge, understanding and experience of those responsible for developing agricultural policy. To understand where gaps in the linkage between the moderators and mediators can be recognised as being positive or negative approaches.

There are sixteen questions divided into four subheadings, notably: Value-adding, Value-adding processes, Competitive advantage, and Supply Chain Networks. First, looking for an understanding of value-adding; second, what actual value-adding processes are employed and supported through government policy. Third, what measurements of comparative advantage are known/used to increase 'rice' agricultural output, which can be shown to be adding directly to GDP; and are there specific government policies or partnerships in place that are enhancing competitive advantage? Moreover, what policy directives or evidence such as reports explain the development of specific supply chain networks across the Ayeyarwady delta.

4. 6. 1 Questions 1 - 4

Question one is presented as an 'open-ended question' here the researcher introduces an option for the respondent to explain the government's position with the aim of finding out what plans have been executed or might be introduced around value-adding; as well as publicising a personal or preferred response to what should be done or introduced by the government. Again, question two is an 'open-ended question' pointing towards gaining further knowledge and understanding of how value-adding methods are deployed within the agricultural sector. The intention is to find out how many different trials have been organised and what approaches, records, and measurement can be explained and discussed. For question three, a different approach was taken; this time, a 'probing question' was selected to entice a personal response on value-adding benefits or what should or could be implemented across the agricultural sector. Question four, again a 'probing question' looks for a deeper understanding of what value-adding means to both moderator and mediator. Furthermore, if the respondent can provide policy examples of when this collaborative effort has taken place; and if there were measurable outcomes that can be discussed?

4. 6. 2 Questions 5 - 8

Question five, again an 'open-ended question', is intended to solicit a personal understanding of the introduction of value-adding processes at the farm level and discuss what government policy provides support or introduces training methods to farmers. Question six, again a 'probing question', intends to solicit a personal understanding of the scale and the challenges associated with agricultural education; and what government policy is in place or being considered to resolve these obstacles. Question seven, again an 'open-ended question' looks for a broader explanation of what government agricultural policy has achieved to date or which current policy exists or are being developed to enhance value-adding processes or mechanisms to increase rice production. Question eight, again a 'probing question' looks for a wider-reaching explanation that provides direct linkage to what government policy intends to achieve for value-adding process

introduction or through government funding allocations. Alternatively, in retrospect, supporting funding access between other external private funding sources.

4. 6. 3 Questions 9 - 12

Question nine, again a 'probing question', calls for a discussion that highlights government policy on competitive advantage across the agricultural sector. The intention is to discuss examples of what competitive advantage policies are in place or will be explicitly introduced for rice. Question ten, again an 'open-ended question', tries to establish what linkage exists between government policy on competitive advantage and food safety regulations at the farm level. Question eleven, again a 'probing question', tries to establish government policy intent on developing rice seed either as a competitive advantage direction to support GDP or one that is influenced by external factors such as NGO's, to introduce competing agricultural policies. Question twelve, again an 'open-ended question' calls for a broader understanding of how both moderators and mediators engage in the development of agricultural rice policy. Conversely, is there any influencing factors such as GDP or NGOs that encourages the government to adopt a Global view to attain access to whole grain rice markets or a local view in addressing poverty?

4. 6. 4 Questions 13 - 16

Question thirteen, again an 'open-ended question' to discover what corroboration exists between farmers and NGOs in the development of supply chain networks throughout the Ayeyarwady delta; and how do these networks align with government policy? Question fourteen, again a 'probing question' asks for a comprehensive dialogue supported with examples of what type of supply chain networks exist, such as producer or retail. Where these introduced by the government, and are they endorsed through government policy or only through mediators, the private sector. Question fifteen, again a 'probing question', intends to establish if supply chain networks supported by government policy provides a situation for farmers to engage in fair, open and equal business practices. Finally, Question sixteen, poses an 'open-ended question' to establish government reactive policy.

4.7 Open-ended and Probing question selections

Table 4. 4 Style of Questions		
	Open-ended	Probing
Question Numbers		
1	X	
2	X	
3		X
4		X
5	X	
6		X
7	X	
8		X
9		X
10	X	
11		X
12	X	
13	X	
14		X
15		X
16	X	
Total	8	8

Table 4. 4 details the two chosen interview question styles, those being either an open-ended or probing question for the interviews. (Weller et al., 2018) argue that a combination of open-ended and probing questions allows for the respondent to provide specific answer to questions directly as well as “*reduces misunderstanding*”. The reason for taking this approach was to confirm the governments overall direction and goals in the creation and deployment of agricultural policy. Moreover, the introduction of more probing questions across the interview questions was taken as the researcher has access to a small sample size “*emphasising probing*”; as a method to enhance the data through

discussion. (Neuert & Lenzner, 2019) argue, probing further into open-ended questions offers the researcher the opportunity to “*clarify what has been said*” by the respondent from a personal position. In essence, the researcher has used open-ended questions to understand a broader view of governments intention supported with in-depth probing questions to allow the respondents a chance to provide ‘their’ personal understandings on the same government agricultural policy intentions.

4.8 Government Thematic Category: Value Creation (VC) & Value Chain Analysis (VCA)

After reviewing the full set of sixteen questions as shown in table 4. 5 that outline an understanding of Value Creation (VC) and Value Chain Analysis (VCA) both of which are supported with subsets of questions that examines factors and elements of value-adding across the rice value chain.

Table 4. 5 Government Interviews		
Thematic Categories Constituents Review	Number of experienced participants	% of Participants that attended
Value-adding (VA)		
Value-adding terms are misunderstood.	5	100%
Value adding is seen as costly.	5	100%
Buyers have overall control on value-adding.	5	100%
Government implements food safety laws and regulations.	5	100%
Value-adding terms are misunderstood and seen to be costly, buyers have overall control on what value-adding processes are required.		
Thematic Categories Constituents Review	Number of experienced participants	% of Participants that attended
Value-adding Processes (VAP)		
Outputs are processed poorly.	5	100%
Processes are divided across different groups of people.	5	100%
Value-adding processes involve specialist machines.	5	100%
Buyers dictate whether to use value-adding processes.	5	100%

Thematic Categories Constituents Review	Number of experienced participants	% of Participants that attended
Competitive advantage (CA)		
Poverty eradication policy.	5	100%
Land certificate development policy.	5	100%
Food safety policy are a competitive advantage.	5	100%
Government to Government policy.	5	100%
Thematic Categories Constituents Review	Number of experienced participants	% of Participants that attended
Supply Chain Networks (SCN)		
Established supply chain networks are inefficient.	5	100%
Infrastructure developments are ongoing.	5	100%
Ownership during transportation	5	100%
Transparent Information channels.	5	100%

Table 4. 6
Thematic Categories Selected

Thematic Categories Constituents Selected	Number of experienced participants	% of Participants that attended
Questions on Value Creation (VC)		
Value-adding is misunderstood and seen to be costly.	5	100%
Value-adding processes are divided across different groups of people.	5	100%
Value Chain Analysis (VCA)		
What policies represents a competitive advantage opportunity?	5	100%
Established supply chain networks are inefficient.	5	100%

The first case study looks at the governments level of understanding of value creation what if any value-adding methods or processes are in place and understood; and can be measured and analysed by government policy directives.

The list of Government officials are identified simply as:

G1, G2, G3, G4 and G5

4. 8. 1 **Value-adding is misunderstood and seen to be costly.**

Value-adding is misunderstood and seen to be costly and is identified as the first theme under value creation, G1 proposed *“in my opinion, for us in Myanmar value adding is definitely our overall goal”*. Business and government work together on a variety of projects, either in favour or against, *“but we work together”*. G1 also stated that, *“government encourages improvements in all areas of society, agriculture is a family business, and each family decides how they invest their time and money”*. Government can only guide, offering where potential opportunities might be found and how to avail of them; but Government cannot demand that these changes must be done, unless these are legal requirements, only market conditions or the buyers of the rice can discuss value-adding requirements. Here we are critical to ensure these additional costs are not unfavourably or pushed towards the farmers or mill owners but are identified as costs which must be accounted and paid.

G2 explained, value-adding in our agricultural sector is *“not about tossing a coin; they are dependent on the quality of the seed and other factors”* such as chemical fertilizer to increase yields? Value processes are indeed where all parties can improve on, many of our people do not have the training or understanding of these methods. Agriculture is a very difficult process, we need to mechanise much of what we do to increase value-adding opportunities, but this is a costly exercise and takes time, buyers are driving the price down and generally wish to export the rice to another country for processing, where they can add-value.

G3 stated, value-adding is not as easy to introduce as people think, we need to establish training standards that can be measured and understood, our people need to learn how to do this. G1 stated, consider this, *“We have 40 million people working in agriculture, to provide them with new ideas for value-adding is going to take a long time”*. Much of what government does is to enhance through knowledge sharing, agricultural output is vital for our people to eat and make some money. G2 explains *“Government wants to upskill our*

workforce” away from manual labour like agriculture, we promote the ideas of farm mechanisation, but this must go hand in hand with development of other sectors, otherwise what other jobs will everybody do if they move or change jobs from agriculture?

G4 added, many of our people working in agriculture have not completed a general education level, we do not send out leaflets or books full of information, this is costly and serves little or no purpose. G3 included, *“we must train the farmers on the ground; this is a major problem for the government”*. In each region we send out trained staff to work with farmers, but these farmers have limited tools to work with, farming and rice milling works are labour intensive. Value-adding within the farming communities is considered an unwanted expense, many farmers just grow foods to eat and earn money when they can at point of sale or the at the farm-gate.

G3 points out, *“government looks at value-adding across the agricultural spectrum, but education in this area must be improved first”*. Education is important to all of us, government and business should work together as we both benefit from it. Here is where we have problems, who will pay for this knowledge? If you say the Government must, then we need a mandate that the people vote for, there are many needs and wants and farming is certainly in that top ten, but those involved in business should also educate themselves. Myanmar has limited agricultural education resources, there are a select group of academics and many do not have actual farming skills. G2 states, *“training is not just setting up meetings there is a substantial amount of funding and actual work needed before, during and after at village and city level”*.

Many of our academic are unable to travel around our country to teach or provide support. At certain times of the year, we bring the academics and village leaders together for knowledge sharing, this can be a range of information such as the benefits of the right inputs, other new methods of farming practice and food safety requirements. G5 adds,

The Government works with the private sector that can help in training, but this is usually on the products for sale alone. We need the businesspeople to step-in and provide trainings for their employees or contract workers. Our current education programmes on value-adding are limited, this will take time and requires substantial investments.

G3 points out that *“in each grain producing region the local government works with village leaders to prearrange harvesting of the crops using machines imported from the USA”*, to assist our farmers in reaping the harvest quickly and at the same time, reducing the chance of grain sun-belching that increased broken rice. This has the positive advantage of getting the grain to the miller in better condition, dry but with limited broken rice which reduces the total value of the crop. G4 explained, *“the problems for value-adding are difficult to imagine as the milling machines are very old and damage the rice”*.

G5 explains, other benefits allow for the farmworkers to begin clearing the field to introduce another crop such as legumes or watermelon, maximising the growing opportunities. Mill processing is by far the biggest problem, our mills are old, very old and in need of replacement, repair is just adding to the broken rice issue. G1 added, *“if the farmer invests money into high-quality seed the miller will break 50% of the yield”*, this is also a reason why farming investments into inputs are limited. The processing destroys the potential value-add gains. Government cannot control these factors directly, we impose certain demands such as food safety within the sector, and these are at a cost to the grower and miller, we must understand where and when costs are generated.

G2 points out, Government has in the past worked with millers to introduce improvements in the grain sorting, bagging, stitching and dry security of the grains. These processes are after the actual milled rice stage and often do not add visible value; except the millers comply to government food-safe regulations that are explained when consumers or intermediaries buy the grain products. G2 explained, the government has engaged academic from the agricultural universities to arrange training events and the

transfer of basic general agricultural policies (GAP) to farmers, these are usually provided at least 2 days per year. Government is working closely with MRF to provide value-adding training programmes to village leaders and businesspeople involved in food growth or food production.

G4 mentioned, MRF is a department within government, tasked with developing business-links outside of the country, government has sponsored events and invited experts to come to Myanmar and show our farmers, mill owners and other businesspeople how to introduce value at different stages on the production chain. Government has provided specific export contracts to companies that wish to purchase substantial amounts of grains, legume, and mangoes. These contracts require the foreign company to provide the necessary training and development of our people so as to transfer new skills and knowledge to them. An example is the export of mangoes to Singapore, there is an actual training system supported with Singaporean managers who work with our farmers all year round in Myanmar to produce and package for export our mangoes to Singapore. This has been a very successful relationship, our mangoes farms are increasing yields and producing high-quality each year, increasing the export price each time.

G1 continued to offer further discussion, since you are focused on rice, there is a lot I can tell you, rice in Myanmar is abundant 2 or 3 times per year, the problem is the growing cycles are the same, so we have little rice or too much at the same harvest time, this is when the farmers want payment, but the price drops due to over-supply. Government provides events around the country to explain what other food products are trending in other countries, the healthy lifestyle consists of wholesome foods like legumes cooked from raw and caned for export.

Other ideas are snack foods with a flavour sold to local retailers and even exported but exporting often means complications with local food safety regulations and our people find these expensive and avoid this type of business.

G2 added, since 2017 village leaders around the country have been *“provided with training and have access to agricultural materials from the government agricultural universities”* to assist and guide the farmers and mill owners with developing a marketing plan for their products. If you go shopping in the local supermarket you will see rice is bagged in plastic with the name of the region, the size and weight matches an affordable amount for the customer to buy. This was never like this before, and it was difficult for customers to identify ‘where’ or which region the rice originated from.

G2 and G3 describes, recently, exporters are *“concerned with improvements in hygiene”* and how rice is bagged. Sorting a size and colour requires considerable investment into machines running on 3-phase power, in many villages there are power distribution difficulties, and such investments might not be endorsed or worthwhile. Rice sold at the farm gate tends to be purchased by the large exporters who separate the rice how they wish. Government is concerned with buyers forcing additional costs on to the farmer or millers, such as strict size or colour sorting. These factors are primarily used in the development of a customer meaning what they want from the seller, in this case the farmer or the miller. Government proposes all value-adding ideas can enhance customer satisfaction and bring in repeat order.

G4 mentioned, *“value is a much-needed idea that government discusses often”*, but we are also trapped with producing enough rice to feed our population, trying to introduce value can be very difficult if you have just enough money to buy broken rice to eat. Government policy, to design and to assist our people in their business interest, where possible, not to engage in how they run their business activities. There is a difference, government understands that there is an opportunity to encourage growth, but not at the expense of another sector, so there must be a deliberate plan arranged through a join understanding supported with policies.

Finally, G1 mentioned, Government understanding can be improved, *“education of its people in farming practices is directly related to business and government”*. But only businesses will decide how to develop value and where to add these processes, Government can advise and suggest, we do this already, but Government cannot push its ideas alone, business would find it difficult to flourish. We all understand that education is identified as a ‘value-adding’ need within the agricultural sector.

4. 8. 2 Value-adding processes are divided across different groups of people.

G5 explains, farming process are split across different stages, we have the farmer that plants and maintains the crops; and then the milling processes, these are often two different groups of people involved here. However, there can be a third group a private harvesting contractor or the Government that is responsible for the actual harvesting of the crops and general bagging. Each group is driven to produce a product at an agreed price, if the price is low it is understood as a basic order or limited added value needed or required, such as time saving.

We do see many farmers are trying to add-value in basic stages such as the rice separation and packaging process. Myanmar has many farmers and miller that get the same reorders each year, many are content with these orders and nobody is asking for any changes, this is because the agents are exporting to countries such as China, where processing is done there at substantially competitive costs, this is how China adds value by buying from us at the lowest price.

G1 outlines some concerns, rice wholesalers and buyers could introduce value-adding processing if they wanted, but our understanding is they do not, because it means higher farm-gate prices. Government has many discussions with village leaders and rice agents to encourage them to introduce value-processing to their customers rice grade improvements across the process, the usual response is the buyers want the raw materials

for processing in another country, so price is the driver. G3 points out, our farmers have adopted some value-adding processing into their production process, not all can afford it, but as an example, those who spray fertilizer are adding value. This is not the only way to add value, what should be known by the farmers and mill owners is just adding a limited amount of fertilizer has no real value-adding outcomes, the process adds only to the expense of growing the crop. Government looks at multiple problems within the farming community, we have offered a general list of what the Government insists must be provided, especially on food safety and what might not actually add value and should be avoided.

G3 also explains, where value-adding processes are difficult to introduce, Government cannot tell farmers what to do, this is their business, they need to find out how to improve their output. Farmers and miller have been doing this work for many years, *"I should say many generations"* and to try to introduce change always meets with pessimism. Milling operators are encouraged to repair their machines in the hope of reducing the broken rice output, but this is not a crime, if the farmer and mill owner are content with the output.

G2 gave further examples of processing, this is the case for broken rice, the order requirements look for size separation sometimes two or three sizes, that is all. Millers can separate the rice into two sizes very quickly, but more size separation requires additional labour, or people to separate the grains again by hand. Rice size sorters are available, but mill owners require a 3-phase power supply, which are not found in many mills as these are located in-land or far from built-up zones.

G2 also provides specific value-adding processing examples, agriculture is a land consuming task, not all areas have access to power, and this is the first drawback to buying machines for milling or value-adding processes, consequently, Government works with those in business who have established themselves close to power-grids or larger villages, here the processing of grains is done, if there are additional value creation tasks often it is in these locations.

Businesspeople who understand and engage in value-adding processes to meet new export trading licence obligations, or who have a contractual agreement with an international buyer, often administered by agents who are hired through country-to-country supply chain managers must ensure all contractual requirements are met; and value-adding factors are recorded and measured.

G4 provided examples of introduction of processes and value-adding, Government has discussed at local level programmes for farmers and mill owners to form co-operatives, pooling of resources that can lead to savings through bulk purchasing of inputs and labour needed. Government is very supporting in bringing co-operatives together, we see greater numbers of our people bringing added value to one location, sharing of resources such as machinery for planting and harvesting and possibly adding value when buyers request it.

Packaging has been on the rise since 2017 when Government encourages mill owners to work with retailers to package grains and display the contents and ingredients breakdown. You can see many rice products sold in retail shops from the many provinces, this was not done before and has been very successful, the by-product of this idea is that the same product can be exported without the need to change the packaging or add anything new. Such as additional information, so it suggests to farmer and mill owner co-operatives, consider packaging as a start because there is a double benefit.

G1 explains, Global purchasing managers from different countries describe what they consider as standard within the rice market, when we are looking at value-adding processes within any agricultural process. There must be an understanding of the quality of the input. If this is of poor quality and the farmer agrees to a price, no extra effort will be added. The reluctance to spend, points directly towards the farm-gate pricing and the risk of spending more funds during the growing cycles, if this price has already been agreed; the farmer or mill owners will be reluctant to spend additional money or consume time, knowing they cannot increase the final price and have no guarantees they will increase the yields per hectare because of the unknown seed quality.

G4 provided an overview of processes, for several years, the Government has concentrated on showing which rice seed is better than other rice seeds, our problem is we have identified hundreds of different seed variants with different quality potential. Over the years Government has been sharing the many ways of adding different methods to agricultural production, many businesspeople get it, others do not see the need. The question of value is understood by Government, however, businesspeople calculate when and where value-adding processes should be introduced, if they see additional gains, they will do it, if they see a cost with no gain, they will avoid it.

G5 gave examples on value-adding processes, farmers see processes as part of the total job and find it very difficult to break these tasks into different financial processes, a farmer's concern for value-adding processes is 'who' will pay for this task? Since farmers are either working for others 'employed' or have agreed in advance to sell the total yield at an agreed price, why would they introduce any value-adding tasks?

Finally, G3 points out, the negative drivers for value-adding processing are in the hands of the buyers, much of the rice after milling is separated and bagged, then shipped. An example is, rice for the local market is fragmented, the farmer can sell unmilled rice direct to the miller, who in turn mills it, then sells the rice to the wholesalers who might ship it across the country or who might export it for further processing elsewhere. Government understands, value-adding processes in general are seen as a positive process and buyers identify investment opportunities when value creation can be introduced.

However, in all matters of value creation or when processes are identified through costing, it cannot mean the reduction of per hour rates of pay alone to achieve value-adding, where people suffer to reduce total costs, this is identified as exploitation and will not be tolerated.

4. 8. 3 What policies represents a competitive advantage opportunity.

G1 explains a long-term vision, our difficulty could become our strength, we have access to land and labour and have contemplated expanding rice production throughout the country, to levels never seen before. The policy and structures are under a review, the idea is a three-fold pathway, which has started with changing the government-controlled land certificate to a short-term leasable land certificate starting at five years, with an option to continue the lease indefinitely.

Our business-minded people can lease land for a minimum time, to grow almost anything, with the exception defined in the land zone, meaning if the area is identified as a rice zone, whereby at least two yields are possible each year; then only rice can be grown as the major crop, with another during the non-rice growing period. This policy allows a family of four or more to lease the land and start their own business, agricultural training as before will be available and supported by MoE and MRF. Government sees this as a positive poverty eradication policy; and one which is supported by many NGOs within the country. The initial priority is to feed our people first; the remainder of the produce will be wholesaled through the supply chain systems or at farm-gate services.

G4 explains, it is understood that with a substantial increase in rice production, prices will be under-pressure, the Government policies aims to develop new buyer markets or G2G business relationships to assist in the export of this increase in rice production, taking a position as a 'low cost' producer. G4 points out *"with 40 million of our people in poverty, we have the opportunity to make them 'land lease' owners, where they can avail of and borrow the minimum agricultural support loan, because now they have a certificate to do so"*. This ensures what they grow they own, and they can decide how much they keep and what amounts they wish to sell into the marketplace.

G2 added, there are many new potential markets for G2G business, many are located in Africa. G2 explained, a competitive advantage can be said to be our affordable broken rice, which we export to Africa, broken rice is used in animal feeds. Why is this a competitive advantage for Myanmar, well we can grow lots of rice and due to the milling companies not able to repair or replace milling machinery with new parts, about 60% or more of the milled rice gets broken. As we engage in 'land leasing' we intend to grow rice at exponential rates, many NGOs located in Myanmar complain that Government is misguided, this is a wrong assumption, we are planning across many sectors; whereas these NGOs concentrate their efforts into one area or sector, G2 explained, *"I wish that was all I had to consider – but my department must look at numerous possibilities, not just feeding our people but growing out country out of poverty"*.

When our final part of the policy plan is understood we should see the price of rice dropping due to over-supply, at this point we can say we can feed our people. G2 continued, Government provides export linkage using a G2G process, we were successful in Africa, local businesses are not restricted to exporting their rice products to their customers wherever these customers are located, and with our G2G established there should be enough money available at farm-gate to sustain each 'land lease' contractor. G2 commented, we also see at this moment other countries will retract out of the rice business over the next few years, such as Thailand, as they require a substantially higher rice price; hence these policies will be part of one of many competitive advantage drivers.

G3 provided examples to explain some of the problems different department have when establishing programmes to help our people. Poverty is not a new problem but one that continues to be a major concern, growing of foods requires a labour-intensive workforce. However, we also must have a structured investment planning, or action plan to deploy our labour force to grow and harvest food. G3 elaborates, our major commodity is rice, it is not another such as coal, when we grow rice, we are able to feed our people and this targets one major problem area *"to alleviate poverty"*.

The fact that we can also grow more rice than many other countries give us a double advantage, where other countries can focus on other commodities we are limited. G3 mentioned, *“the bottom-line is clear, get our people onto land which they can call their own, through the ‘land lease’ policy contract; support our new ‘land lease’ tenants with training and other educational needs”*. As these land areas are specifically chosen these ‘land lease’ tenants contracts grow, we are establishing new population zones at the same time, Government can target these areas for investment and additional societal growth.

G1 expresses, your question is asking the wrong point, our government is not actively engaged in a competitive advantage struggle, this is not Singapore, we must concentrate of feeding our people, improving their lives, targeting investments into areas that will benefit them, over time. Government, local government, and village leaders invest considerable resources in explaining to all food producers and those involved with food transportation of any kind that *“food safety is everybody’s responsibility”*. G1 explains, Government creates policies and adopt other policies with ASEAN or enforce policies that are part of the export processing of food products around the globe.

For several years Government and many local businesses have adopted a variance of requirements, more need to be understood especially when exporting. Labelling and size or weight are the basic demands, we have implemented similar requirements for local products sold in country. Government has established food safety as a necessity, you can express this as a locally acceptable competitive advantage to challenge rice imports, our government is responsible to keep our people safe, Government policy is there to ensure how we keep everyone safe; as well as detaining and charging those unscrupulous people if they engage in harming our people or our businesses interests.

G2 points out, recent updated policies enforce previous policy that school children must attend school and not be found working in the rice fields, milling operators must pay cash for rice and must not exchange rice for milling work, receipts must be produced, and the

rice must be linked to a farmer by name and the yield quantities recorded before and after milling and the rice rations for whole and broken rice. The farmer is also required to indicate the seed origin and what additional inputs such as the brand of fertiliser or herbicide and the quantities use on this yield.

G4 offers direct clarity, Government receives complaints why do we need all this information, often we are accused of trying to collect more Taxes, this is incorrect as our view is to comply with global food policy through integration at the local level. Can you even imagine if rice exports to another country are in some way contaminated and people get sick or worse? Our trading relations would be devastated, Government must participate at every level as policy is crafted to identify our competitive advantage and our responsibilities to our country. G1 points out, Government policies must provide for all of our people, *“I am not sure if people think we just sit in our office and create policies, this can take several months in discussion between multiple departments alone”*.

We too have special interest groups, the agricultural groups are vast, and all fourteen provinces are linked through the MRF. There are smaller groups or supporting private sector groups such as fertilizer, seed banks, herbicides, mobile labour and recently contract farming. G1 continues, Governments long-term strategy would be to encourage joint-ventures within the milling sector, to produce more whole grain unbroken rice which adds-value and introduced better processing stages, especially when exporting these products, other will be to add-value to the rice by altering it into another food product, maybe cooking it for a ready meal, just one example.

Finally, G2 explains, *“we are in a global marketplace there are many players and those who control these global food chains are the global food retailers”*.

4. 8. 4 Established supply chain networks are inefficient.

G4 commented, Myanmar is a country built on agriculture, you ask about supply chains and we understand this as a road network, there are multiple elements within these chains or links; controlled by certain people until the rice falls into the hand of the buyer. G4 added, *“for as long as I can remember we have an established supply chain route North to South, East to West, with hundreds of waterways linking villages to town, but these roads and waterways are old and in need of repair to accommodate the amount of commerce sent on them each day”*. G4 points out, *“Government looks at these developing zones and we consider what infrastructure development can we introduce”* that will improve rice grain output in the short-term and what investment amounts are needed, plus the eventual payback or return on these investment programmes. Often, we find leaving the supply chains as they are works. This means or suggests to us to develop another process along the supply chain, such as food process for ready meals, rice-parboiling, raw and cooked animal feed mixing for local and export markets.

G1 explains, Government can only develop infrastructure routes around the country when it is clearly identified which cities or towns need new or improved road or water links. There are many ‘secondary’ roads connecting villages. Local government, and the private sector work together on building road networks through build-operate-transfer BOT contracts, often there is a toll to drive on the major road. G1 continued to explain, waterways have long been used in Myanmar and today the waterways are congested, unfortunately, everywhere is suffering with global warming and many of the well-established waterways have started to dry up. Meaning more shipments are transported on land and this has added to the pressures of congested roads and the fact that many trucks are overweight that are causing substantial damage to the road network which was not designed for these heavy trucks.

G3 points out, village leaders arrange for large shipments of seed or bulk Agri-chemicals to be delivered to a central location, where the order can be offloaded, this is where the farmers collect what has been ordered in smaller amounts. It is also more convenient for farmers as there might be a difficult pathway or a lack of a road for these trucks to access the final location such as the farm. G3 provided some examples, Government looks at which region has the greater advantages, since you are asking about rice, we can look at Ayeyarwady, here we have many thousands of road networks with a central main artery passing through the eight major towns. Much of this whole region has no electricity, the farmers and millers communicate using mobiles to arrange different stages of the process or supply chain activities, the millers arrange rice bag collection directly with the wholesale agents.

G2 explains, Government is in the planning stages of increasing the railway links to major rice zones for a cheaper alternative to road transportation, taking the stress of heavy trucks off the road and placing the rice onto the track looks promising. However, this will not happen overnight, but we recognize railway-networks can be a long-term infrastructure supply chain system in the making. Government is not concentrating on rice alone, we have mangoes, watermelon, fish, corn, and legumes to mention a few; all of which need to be within or have access to a structured supply chain network, to ensure our produce reaches our cities and export markets in a timely fashion.

G5 provided insight, *“what we often find are farmers and mill owners using the same shipping companies or family members to move their rice to wherever it will be sold”*. This means the roads can be suddenly blocked if you consider the number of individual trucks and tractors on the road at one time. The haulage industry is underdeveloped in our country and those companies with trucks for rental are very expensive as supply and demand allocation during harvesting weeks starts. G5 points out, Government has its own supply chain system established, where rice is concerned Government purchases directly from millers, the rice is collected and distributed to the poorest in key cities and village locations, we

often use Government vehicles or military trucks to do this and arrange the shipments once the millers confirm the rice is ready. G5 adds, millers act as shipping agents in many villages, they have the task of sorting the rice into different qualities and packaging the rice into required or ordered weights, such as 20kg bags as an example.

G4 provided a detailed overview, *“contract farming companies are fully funded, either a joint-venture or 100% Myanmar owned like MAPCO”*. They harvest the crops and transport them to their purpose-built production facilities which has access to road, rail, and waterways. Here multiple options for export quality food products can be achieved, parboiling of rice, production of other rice product for ready meals or frozen meals can be completed, here we see value-adding at scale. Often, we find the bigger companies who buy whole areas of rice have a contract with certain millers who grade, sort, and package the rice as per order, usually for direct export. G4 added, Government is not directly involved with these supply chain; these are controlled by a separate group of people from outside the country who has a local person or agents that takes direct action to ensure the shipment is correct and sent to the port or via the road networks for direct export.

G2 points out, individuals working for foreign buyers often will engage an agent who can show many years of rice buying and the total value of the same; the agent receives a full payment package plus a commission on completion at the bank, where the final payment is confirmed by the bank and not the agent. There are usually a few extra days of work when a foreign buyer is involved, this is predominantly Government participating to ensure the right product meets the original order, food safety regulations and correct packaging is completed, other external transactions such as insurances and shipping must be completed prior to completion and release of the rice to the shipper or shipping agent. G2 points out, MRF assists other smaller groups such as local and regional wholesalers, to arrange their own transportation when they buy or move rice around the country.

To ensure ownership of rice on trucks, there must be invoice and payment papers with the driver, if not ownership of the rice (or other items) is called into question, delays can mean the shipment is held until ownership is confirmed.

4. 9 MRF Thematic Category: Value Creation (VC) & Value Chain Analysis (VCA)

The second case study looks at the Myanmar Rice Federation (MRF), that is mandated to link with the agricultural private sector and specific Government entities such as DICA and MIC, so as to establish the sustainable development of Myanmar's rice industry. MRF represents various rice associations, millers, rice traders, seed producers and rice growers across the country, working under the direction of the agricultural ministry. The same sixteen questions were asked with the intention of gaining direct feedback from the mediators who are affected by Government policy. The thematic questions are found in table 4. 7.

Table 4. 7		
Thematic Category - MRF Interviews		
Thematic Categories Constituents Review	Number of experienced participants	% of Participants that attended
Value-adding (VA)		
Value-adding is counter-productive	5	100%
Value-adding Process of Miller Operator licence	5	100%
Education on Value-adding across hundred dialects	5	100%
Transferring of knowledge & Responsibilities	5	100%
Thematic Categories Constituents Review	Number of experienced participants	% of Participants that attended
Value-adding Processes (VAP)		
Implementation of value-adding processes has multiple problems	5	100%
Government broadcasts relevant information - Engagement is a problem	5	100%
Pre-Contracts & the Farm-Gate Price	5	100%
Funding is available for the younger generation	5	100%

Thematic Categories Constituents Review	Number of experienced participants	% of Participants that attended
Competitive advantage (CA)		
Competitive advantage is a difficult concept, practical applications are needed	5	100%
Food safety regulations not linked to Competitive advantage	5	100%
Government Policy to alleviate poverty	5	100%
Government and business Policy engagement	5	100%
Thematic Categories Constituents Review	Number of experienced participants	% of Participants that attended
Supply Chain Networks (SCN)		
Government Supply Chain Networks Programme Underdeveloped	5	100%
Supply Chain Networks & Communications	5	100%
Supply chain Networks Honest Transaction Costs	5	100%
Environmental and major disruptive Planning	5	100%
<p style="text-align: center;">Table 4. 8</p> <p style="text-align: center;">Thematic Categories Selected</p>		
Thematic Categories Constituents Selected	Number of experienced participants	% of Participants that attended
Questions on Value Creation (VC)		
Education on value-adding across one hundred dialects is problematic	5	100%
Funding is available for value-adding processes	5	100%
Value Chain Analysis (VCA)		
Practical applications are needed to develop Competitive advantage.	5	100%
Supply Chain Networks Programme Underdeveloped	5	100%

Myanmar Rice Federation Director:
Myanmar Rice Federation:

FD1, FD2.
RF1, RF2, RF3.

4. 9. 1 Education on value-adding across one hundred dialects is problematic.

This is a very new set of ideas, however, on review FD2 stated *“creating or adding value along the process is encouraged by government”*, value-adding is just an academic term.

RF1 explains, many of our seed producers justify the benefits to the farmers that higher-yielding rice is cost effective, the difficulties are with the millers, rice is broken during this process and is counter-productive. RF1 adds, *“over the last few years millers have tried to improve output and reduce broken rice per centages”*. However, farmers find this value-adding idea complicated because farmers and millers do not know how to show value-adding in their process.

FD2 points out, the buyers do not ask for extra value-adding services, they just want the rice at the agreed price prior to planning. Government policy and MRF explains *“value-adding is the future of agricultural development, value-adding is understanding where we can improve on our product or process”*. RF3 add, sale people of inputs are always explaining the value-adding properties in their products, but our farmers are poor and do not have the tools to improve the rice yields or knowledge to develop processes.

FD1 explains, *“we must concentrate on assisting our people with food production, we also encourage value-adding methods to those businesses that currently export bulk rice. Looking at how we grow rice and who are the buyers, often, the decision to add-value across the process depends on the buyer or agent”*, Government has limited involvement unless food or other regulations are broken in the process.

FD2 explained, we have investment concerns and, in some cases, outdated policy; but we cannot just change this overnight, it takes time, we have introduced value-adding ideas at Government level and have initiated further investigation into how that can be done across the sector. RF1 added, we work with farmers who are underfunded and *“the idea of value-adding needs Government support to achieve higher yields”*.

In some land areas the soil is of high yielding quality, the use of poor-quality seed will not produce a higher quality of output. Our people are not educated to understand value-adding the rice sector is driven by price. RF2 suggested, the Government has introduced value-adding idea when working with FDI-partnerships and NGOs, time will tell on the success of their efforts. RF3 pointed out, understanding value across the land depends on what is grown, the original condition and seed quality and what to expect the final output to be worth, and who will buy it.

RF2 points out, agricultural inputs such as fertilizer is now produced in Myanmar, the product is subsidized allowing farmers the option to purchase a local quality product and to stop buying imports, saving them money. RF2 adds, that farmers and millers buy illegal imported fertilizers to hide the business transaction, but Government policy is working to stop this from happening.

RF2 and RF3 point out, Government demands the packaging company or the persons responsible for this stage of the process complies with FDA regulations that “*stipulate nutritional value, weights, and the type of rice seed*”, all of this adds value-add from the customer position and value-add points from the producer’s position. FD2 explains, before only imported rice had all this information and in Myanmar, we have a growing foreign population that can now select rice grown from around Myanmar not just from Thailand or India imports.

FD1 points out, the Government has introduced policy to remove the use of poor-quality seed, this was done by working with village leaders to explain the benefits of purchasing rice from rice-seed wholesalers approved by the Government. Rice is our countries food stable and Government is intent on ensuring high-quality rice, even for broken rice so our people can eat healthy. FD1 added, Government enforces food regulations across the country; and since 2015 started to control how rice and other crops where packaged, what information was stamped on the packaging making the miller/operators legally responsible for these tasks.

FD2 explained, five years ago, Government introduced the food safety regulations policy, the initial phase started with training programmes in all the major villages over a period of many months. The introduction of the miller's operator licence identified the final stage in rice production as the final legal requirement.

FD1, discussed, many farmers and mill owners found the regulations complicated and tried to avoid following them, the village leaders, and a representative from MRF would meet with these groups to fix the problems. The main difficulties are that Government demands recording of all inputs are recorded and this information is given to the millers. Farmers complained that this type of work needs an educated person, and nobody is there to assist them.

RF1 added, millers are responsible for the bagging and packaging and labelling of the grains, these must be sealed or stitched, the completion date, weight and name of the farmer and the inputs used are all recorded in the production record book. If this is not done, the millers can have their operator's licence cancelled. RF2 added, there are thousands of miller-operators, and this food safety policy would be impossible to manage if the farmers were in control, "*we have millions of farmers*", this is why the millers have this responsibility, they are the last in the process before shipment.

RF3, explains, the Government has limited trainers who can provide trainings day and these people work at the MRF or come from local universities located near the farmers and millers, we all provide information in a practical way, we do not use books or anything like this. Mostly our farmers and miller did not finish school so everything is hands-on, we also provide videos that everybody can watch in the village leader's office. These are very useful when we change the language or dialect.

FD1 adds, training is given by local Government to renew the millers' operator's licence every three years, the production record book is a key requirement which will be inspected, bank transaction statements are also required, and everything must be correct. RF1 added, trainers from MRF try to visit the millers before the licence renewal date to

assist in preparing all the documents, RF1 explains *“the last thing we need are cancelled licences, it is very difficult to know if the miller is milling rice for his family or for another farmer”*. If they mill grains for themselves, they do not need a licence, only if milling for another farmers; this is why the food safety policy is confusing for many people.

FD1, points out, mill owners must register who are the local farmers that grows and process grains at their mill, the production record book is used to record what inputs are used when growing grains, the farmer has to also produce the payment receipts for these inputs including the brand name and licence number which must be stamped on these products. FD1 adds, we find that mill owners are now agents for inputs like fertilizers and herbicides as this makes the recording of these into the production record book simpler.

RF2 adds, mill owners must provide basic training to the farmers on how to use these chemicals and the mixing of them as explained on the containers, the farmer must sign to confirm they have been trained.

RF2 points out, mill owners are now linked to transportation groups to arrange collection or shipments of the bagged grains, mill owners now provide plastic packaging with pre-printed label of information which adds-value to the rice prior to shipment, this ensures the grains process meets the food safety regulations and standards. Finally, FD1 adds, this looks complicated and for many mill owners it is, but there are huge difficulties working with farmers *“due to their population numbers, their location, education background and their actual responsibilities with the overall grain process”*. It is only through the millers where we can introduce food safety records and where we can measure the output; and qualify through bank payments that all inputs are legal and not imported from the black-market.

FD1, explains, Our MRF staff are constantly training farmers and mill owners in each region, this is done through a rotation timetable. The training days are usually just before the next planting cycle, you can call this a type of refresher course. The village leaders in each district will announce the ‘free’ Government education day, often we also have private business at the meetings, these are companies that are licenced to sell inputs.

RF2 added, education is a difficult problem for us, not just delivering in Myanmar language, we have more than one hundred dialects as well, we do not print out any materials, but the private sellers provide colourful brochures, we have found printing anything for the farmers is just an expense. Hands on training with Q&A afterwards, the training lasts about 4-hours and we also arrange a light lunch with soft-drinks.

FD2 points out, many farmers and mill owners attend the training days as these are recorded and the mill owners can record this in production record book, however, our trainers have identified many mill owners and farmers have not changed their ways and simply fill in the production record book. RF3, explains possible reasons for this, *“in many regions there is a labour shortage, the younger generation refuse to work in agriculture opting to work for manufacturing companies, or they relocate to the larger cities to work in restaurant”*. In recent times many have become self-employed food deliver people using bicycles.

FD1, points out, here at MRF we link with agents and buyer, we arrange meetings with them to emphasise the need to develop the rice sector, away from growing and exporting the raw grain product. We have explained the country’s need to develop value-adding processes such as parboiling of rice. However, the response over the last couple of years is *“we speak to the international grain buyers who are only concerned with the Myanmar farm-gate price, our processing facilities do not meet their requirements”*. In the meantime, we can only continue to introduce and develop these value-adding processes.

RF1 adds, *“the buyers control the whole process, and it is very clear they are driven by price alone, this is achieved by paying the farmers and mill owners a per cent of the potential yield value upfront”*, something like a weekly wage. RF3 adds, if the buyers want to add-value they arrange this with the millers, in recent times the millers could earn a little extra by buying the 50kg and 30kg rice bags, they will print the requirements on these to comply with the food safety regulations.

However, now the buyers have these made in bulk and provide the bags to the mill owner, reducing the final costs.

FD1, explains, MRF is a Government department we try to encourage different types of value-adding at each stage, for example, we will work on one farm for a whole day and invite local farmers and the registered mill owner to attend. We discuss rice seed identification, planting distance, fertilizer and herbicide mixing and how to spray, many farmers will say *“we know all of this and do not need to see it again”*.

However, our direction is to reiterate the need to move away from a mixed often unknown seed variety to a better yielding seed that are available from the official seed dealers.

RF3 adds, *“we work with the mill owners to encourage them to be teachers and to continue the information sharing”*. Here we also reiterate to the mill owners that they must report all the products used in growing of grains, this is reaffirmed when all the farmers are present.

RF2, points out, *“it can be difficult to bring these large groups of people together, there have been many arguments about missing payments for inputs”* and mill owners complaining to the village leaders. Government and business work together and the food safe programme points out how everyone improve yields and grain quality by employing this food safety system.

FD2 explains, Government works with farmers and mill owners of all sizes an example is if they need a small loan to purchase inputs or if the case of the miller if some part of the equipment needs repairing, these loans are not of a high value amounting to one-hundred dollars; but this can be everything to the farmer or mill owner.

RF1 adds, Government is upgrading the power supply around the villages in high producing regions, this does not include 3-phase as this is found in large city locations, but there are plans to develop the energy infrastructures.

4. 9. 2 Funding is available for value-adding processes.

FD1 points out, MRF staff work to implement value-adding processes, we are working with difference groups of people within the agricultural sector, not just the farmers but agents, miller, and input retailers. However, there are many limitations, the first can be understood as a lack of knowledge or education in the processes, our farmers have been doing the same tasks for generations, and it works, why change now if the farm-gate price will not increase.

RF1 adds, farmers and we can say many people living in the villages do not have a high education level, many did not finish high school, they are active people and work many hours each day on the farms, but the tasks they do are all manual task without machines. RF2 explains, *“when I provide a training day the first thing, we concentrate on is the seed quality, farmers have a habit of sharing seeds with each other, we showed them how to identify high quality seeds and to separate these from the poor-quality ones”*. We then instruct the farmers to place the high-quality seed in the best area on their lands and lower quality everywhere else, this helps the farmers to add more fertiliser chemical to the better seed rather than all over. RF3 adds, in many regions we already understand the soil composition and explain this to the farmers also, we do not get technical but show them which rice seed will achieve higher yields and why.

FD2 explains, Government policy for training means we must reiterate the food safety regulations, we spend time asking questions from the farmers and mill owners what their ideas are. We take notes and record these for later discussions at MRF offices. FD2 adds, we explain again what it is necessary for the production record book to be correct and updated when grains are grown and processed, packed, and shipped, we also show them a completed grains process chart right through to the retailers. There have been some problems in the past that where in the newspapers for chemical contamination or higher amounts of fertilisers chemicals were found on rice from Bago, we discuss this with the team and explain how to avoid these problems on the farms.

FD1 points out, one question that always is presented to us is this, *“you want us to add this and add that, this is a lot of work for us, but the farm-gate price is the same”*. The only way we can explain the answer is through ‘demand and supply’ methods, again we cannot get too technical, and we simply tell them that without these added-values, customers will buy rice from another country. FD1 added, the larger contract farming companies are well-equipped to employ and deploy value-adding processes, Government works with these companies to maximise exports of whole-grains to capture higher prices.

RF2 explains, our millers produce a substantial amount of broken rice, this is just one of the main obstacles why farmers do not want to spend extra money of selected seeds. Recently the broken rice farm-gate prices have increased due to the China crises, the Government in support of China removed the Tax charge for exported broken rice, this was a boost for the sector. RF3 added, millers have a lot of control over the farmers because of the food safety regulations, there are many complaints made at the village leader level. As of now this can be very problematic if these groups cannot work with each other.

FD2, Government, MRF and other agricultural associations provide a lot of information and training days to everybody who attends the training. We did provide leaflets of information at the start, but we have stopped this as we understand many of the participants found the information very technical.

FD1 adds, we announce these training days and what we often find is that many farmers and mill owners do not come to the free training, we make sure these training days are not during a growing period so there is not actual farming or milling work being done.

RF1 points out, each year we consistently deal with the older generation, the younger population are nowhere to be found and what we see is the parents and grandparents running the farm, driving to collect inputs or have another job to earn money. RF2 adds, each leader of the village is provided with an office, we place videos of the trainings and also have videos to explain how to improve the yields and mix the chemicals correctly.

RF2 adds, you can also find quite a lot of information at the local rural banks, here the information is concerning short-term grain loans over a six-month period. FD1 offers examples of Government also broadcasts relevant information across the radio-stations, TV as an information platform is not used very much as many farmers do not own one. FD1 adds, during the growing and harvesting period the Government and others such as MRF broadcast through SMS weather forecasts, farm-gate prices per region, names of shipping and transportation companies that have available space. This is to enhance the information experience and reduce any misrepresentation made by the grain buyers.

RF1, explains, *“only Government licenced companies can sell to farmers or millers they must provide training on the products they are selling to them”*. This training is recorded, and a training certificate is issued to those who were trained, the certificate number and date of training are place in millers production record book. RF3 adds, *“information is available, but many farmers and millers have a poor education level that is why we have videos, we understand the lack of educations keeps them from attending the training days”*. RF3 stated, *“we do not have enough people that speaks other dialects in MRF, and this is a huge problem for us”*.

FD2 points out, at MRF we work with many independent groups to grow the agricultural business across the country, like everyone else, we start with a plan and hope to maximise the yields and profits for everybody. FD1 adds, some months we get higher yields and some not so good, if the farmers grow more rice that is good we have more to sell locally and also export. RF2 explains, we have a continued problem when we try to adjust the rice price when we see a surge in demand, often, the buyers have contracted with a price point. Even if the farmer and millers can see a higher farm-gate price, they cannot renegotiate. RF3 adds, *“buyers agree to a price sometimes they also provide the inputs like seed and fertilizers but not to all farmers because it is high risk”*. RF1 comments, there have been terrible arguments at some farm-gates where the millers refuse to allow the sale to take place, unless they get a share of the increased price, the agreement must stand. RF1 explains the other problems we have is ‘over-supply’ here the price drops and the buyers suffer, again the agreement stands.

FD1 explains, *“this year China is buying all the rice it can from us because they have flooding zones, but we cannot grow more with the click of our fingers”*. FD2 adds, Government continues to develop new markets using the G2G approach, as of now we concentrate on exporting broken rice as this is of high-quality and is used as animal feed. During this last year there was a substantial drop in global animal consumption, and we realised this problem early during the pandemic. RF1 adds, the climate problems which affected China was the lifesaver for our people as broken rice orders dried-up and many farmers and mill owners were facing financial difficulties.

RF3 explains, the trainers often try to provide other growing ideas to the farmers and millers alike, RF3 states *“it is not easy to say the growing season starts on this day and will finish on that day”*, but Government and MRF explains food choice changes or lifestyles of consumers in other countries. There is a growing trend for healthy beans in Western countries for people that no longer wants to eat meat.

FD1 adds, beans require a small amount of water, with climate change we are having mini monsoons during the dry periods and farmers can lose the bean crop due to flooding.

RF1 points out that Government provides loan support for the agri-business throughout the year, these loans are administered through the Banks, these Banks provide short-term funds to the farmers for inputs and when required to purchase tools. The loan is not for any other purpose and the term is no longer than six-months. RF3 adds, Government has an equipment and tools purchase programmes that are Tax free for first time buyers, you can avail of this Tax-free advantage every two years.

FD2 explains some of the advantages these types of loans offer to farmers that have between one and two hectares of land, that can produce the land-certificate and have a bank account. The Bank will check to see if there are any ‘claims’ against the land-certificate, meaning that the farmer has unpaid debts. RF1 adds, if there are problems with unpaid loans back to the bank, no additional loans can be processed, unfortunately, there are difficulties for farmers or miller to repay the short-term loans.

FD1 explains, MRF proactively brings communities together to form a co-operative, where the sharing of equipment, machinery and other resources can be achieved, the banks also prefer these larger group arrangements as it spreads the risk. RF1 adds, these co-operatives also have increased buyer-power and negotiations when dealing with the grain buyers of the expected yields, we have found more co-operatives are adding their yields to export contracts.

RF2 points out, many millers are not interested in expanding the mill, many want to retire from this business, funding is available, but the farmers and millers' children do not want to work in the family business. This is a concern, MRF and DICA has worked to change the MIC regulation for FDI to enter into the milling sector; but so far there are no companies wanting to enter Myanmar for grain milling.

FD1 and FD2 express, funding is not the problem we need younger people to enter this business, Government has age restrictions for large Agri loans, and many farmers and millers are too old, we need their children to engage and take the loan out in their names to run the business. FD1 adds, millers have access to Government funding to upgrade the processes or to invest in specific milling machines, but they do not accept the conditions, they want to have twenty years to pay the money back, this is not a property purchase, five years is the maximum pay-back period. FD1 points out, millers are complaining about the farm-gate price and tell us *"they cannot make extra money if they buy new equipment to introduce these value-added processes"*. RF1 adds, trainers from MRF and at least one person from the export department explain the benefits of value-adding processes, stating *"if they were to invest and upgrade, the processed rice can be added to export contracts"*. RF2 commented, *"these funding mechanisms are initially directed to those millers with access to 3-phase power and the milling operation must be near main access roads"*.

Finally, FD1 explains, when a great idea is taken away because of the buyers it upsets everybody, millers were encouraged to buy plastic bagger machines, this was an extra income benefit at first and clearly a value-added process. But the rice buyers now provide these bags as they have them produced in China, reducing that little extra income. FD1

adds, we proposed these bagger machines in 2017 and many millers saw the potential, they do not trust us as much after this as these baggers cost on average six-hundred US Dollars and the extra charge for the bag assisted in paying for this whole process. The bag making brought in that extra income, now that has been taken away.

4. 9. 3 Practical applications are needed to develop Competitive advantage.

FD1 explains, *“food should be safe, but we have some terrible people in the world that try to implement all sorts of cost-saving activities”*, which cause harm to others. RF1 and RF2 discuss, Myanmar is no different, we have people like this also, but in our case, it is mostly due to not reading the instructions correctly, if these instructions are not in English or in our Myanmar language, then this suggests these products are illegal imports or those which do not comply with our FDA regulations.

FD2 points out, *“the food safe law has improved rice production throughout the country”* at first there were many complaints, these took many months to resolve. FD1 added, *“we do not see any competitive advantage from Government policy”* as they stand, we are in the development stages of increasing grain yields to reduce the prices for our people and counter the poverty problems we have. RF3 added, as mentioned before *“the buyers are controlling the price”* because they are upfronting partial payments to mill owners who make payments to the farmers.

FD1 explains, we must show how to do all these things, *“we would find this competitive advantage concept difficult to explain to farmers or mill owners”*, they must see the benefits and reap the financial rewards. Our peoples’ have been working all their lives in growing predominantly rice, some have grown beans and corn. Nothing has changed for them over the years, they still use the same people for all tasks even delivering grains to the market.

FD2 adds, when the food safety regulations were implemented, the complaints never stopped arriving here at MRF, FD2 provided examples, *“when I was delivering training days farmers and miller told me the weight and labelling of the rice was not in our Myanmar culture, rice is scooped, and the customer pays based on weight”*. FD2 points out, once we engaged the retailers into the programme, they *“loved the idea”* explaining how this could be a game-changer for local rice, there were right, *“now you can buy rice in Myanmar and know which province it is from, the rice is bagged in transparent plastic with the information sheet on the back, processing date as well as the processor code”*. RF1 adds, it took about one year for everyone to agree that the retail-rice programme was a success, however, now we find *“buyers are asking for more hygiene controls during the processing stages”*, this is expensive, and farmers cannot do these to such a high standard. RF2 explained, Government policy is fixed on food safety, but many farmers and mill owners still have difficulties with some policies such as the amounts of chemicals to use.

The farmers decide if they will use more fertilizers on their crops to increase growth, unregulated use can mean the grains are contaminated with these chemicals.

FD2 adds, this is where the control policies can be enforced, the production record book is controlled by the millers and the miller's identification stamp is on all the packaging. When the unmilled rice is brought to the mill it is possible to check the grains odour, if there are any pungent fertilizer residue the miller can reject the grain for processing as *“grains to eat”*, the village leader will be called to check the miller's decision, if they agree the grains are contaminated then the grains are downgraded to animal feed only. FD2 comments, this keeps these contaminated grains out of the food supply, so the check & balance food safety policy is working across the country. FD1 and RF1 discuss the grains development during 2019, they explain, *“over the last years we are growing and exporting more rice and some farmers and millers are working together, growing healthy organic rice and others grow brown rice”*. These products are considered expensive, the packaging will comply to the country FDA regulations where the products will be sole.

Myanmar FDA regulations demand all food products to have either a local language label or an English translated attached to the packaging, if not, then these products cannot be sold locally and are for export alone. FD2 adds, *“only the private rice miller companies can export par-boiled rice they have a special Government licence to do this and must be ISO rated”*. RF3 commented, MRF is working closely with these FDI-Joint-venture companies to share these skills with other members within the federation, there were training events schedules during 2020 but Covid restrictions stopped everything, we hope to resume these training events in the future.

FD1 explains, Inputs of seed, fertilizer or herbicides are identified and recorded in the miller’s production record book, Government policy is clear on these products. Miller operations are required to check the quality of the rice grain before milling, a mould or fungus can be a problem if the rice is left drying but not completely dry, packaging of damp rice or rice with excess moisture is not tolerated as this can be harmful to the consumers.

FD2 adds, food source and recording are now standard requirement and *“the information collected amounts to the farmers family name and the volume weight of rice brought for milling, moisture count and finished milled weight”*; all are recorded by the millers in the production record book, this is one part of multiple stages.

RF1 points out, Government policy is clear, we have followed the requirements presented through various ASEAN meetings, shipments of ‘rice’ is one area, but rice products, temperature and dry storage are part of Myanmar and ASEAN regulations, these directly link to insurance obligations, RF1 adds, *“we can say that the introduction of food safety policies has given us a competitive advantage across ASEAN, our rice quality meets other countries but is sold at a lower price”*. FD1 explains, *“UN and WTO present a global view on how food production should and must be correctly performed”*, there are different actors at different stages of the process; but it can be suggested that the Myanmar Government tries to adopt a best practice policy or one which we can afford to work within.

RF1 adds, *“there are different global supply chain companies that have tried to force our farmers and milling owners to take on or accept the costs to produce rice to a standard which meets the supply chain buyer’s needs”*, this is not always possible and Government policy prevents these actors from taking advantage through contract negotiation.

RF2 point out, on several occasions the Government has found overuse of chemical fertilizer on rice crops, after investigation of local people getting sick; randomly testing of rice exports prior to shipment are common. RF3 adds, if the results are positive for contamination substantial fines are incurred on the exporter, they can use the food safety policy to resolve these problems with the millers and farmers, but the rice shipment will not leave the port. FD2 adds, in such cases those involved with the rice transaction from farmer, millers and agents will meet with the village leader to resolve the problem; the rice is always recategorized down to animal feed.

FD2 continues to explain, *“what we often find is the purchase of pre-mixed chemicals are sold within the farming communities that do not comply to Myanmar code, it is big business for these people to promise higher yield and our farmers trust them. Not knowing the potential consequences that might happen”*.

FD2 points out, an exported food product should come with a Government label that confirms *‘this food is safe’*. Our country’s name is all over the shipment and Government takes full responsibility for it. Hence, when we find unscrupulous people in the supply chain, we take them to task. Everyone loses money and often the Government is left holding the embarrassing bag.

RF1 explains, a global adoption of food policies exists, we know this, and we as a food producing nation want to guarantee that our rice meets this global food safety demand. However, making food safe can be achieved but sometimes, *“regulations can be financially prohibitive for us as a country”*. These countries that demand very high standards must be avoided until our skillset improves to meet these rigorous demands, demands we understand and want to meet.

FD1 points out, rice grain is a stable product, it can be broken but is still stable and as long as the rice is dry and sealed in a strong bag and stored correctly, the rice is considered safe to eat. FD2 explains, the product changes once moisture enters the bag or worse vermin start to eat the rice, then, it has failed the food safety test. Farmers and rice mill owners understand these problems and do everything they must to ensure these problems do not happen.

RF1 explains, Government considers food safety as a necessity for both exporting rice and delivery rice throughout Myanmar, our Government is responsible to keep our people safe, Government policy is there to ensure how we keep everyone safe; as well as detaining and charging those unscrupulous people if they engage in harming our people or our businesses. RF2 adds, food safety is our number one priority when we train farmers and mill owners, we also invite the private sector that sells any chemicals to them to join the training.

FD1 adds, "the food safety policy has made our processes cleaner and traceable, labels explain about the food and retailers like to know this information, the bagging labels are printed on nylon with the ingredient breakdown for export. FD1 continues, competitive advantage is a new idea for us, but the contract farmers understand this, and it is evident. FD1 adds, *"our rice seed are many different kinds how can we have an advantage"*, we have high quality mixed with poor quality rice. *"Government talks about land-leasing as the future competitive advantage, but we do not understand how this can work in the short-term"*.

RF1 points out, *"our milling companies are old and so is the machines they use how can we be competitive against a country like Thailand"*? RF1 added, *"ASEAN policy mentioned competitive advantage at a meeting in 2018 but this is for developed countries, Myanmar is many years behind them"*.

FD1, comments, your point suggests a military style action plan, this might work on paper but in reality, it is impossible to deploy effectively, many people are concerned with *"how they will do what they want to do"*, growing of food is not for everybody.

FD1 explains, Government has in the past worked with International Rice Research Institute known as IRRI, we invested considerable resources here but found the costs of rice production to be high; this deterred farmers from buying it. Today, farming groups have access to seed imported from around ASEAN, again, it is not for Government to dictate what our people are doing with their business affairs.

FD1 adds, IRRI continues to be a global seed producer, Government has mapped out our soil composition across the agricultural zones, in 25% of the country we have mountains, and these places are difficult to grow much of anything, commercially. Other countries are selling high-quality seeds which can be grown in Myanmar but seed/soil matching; these seeds are much cheaper than IRRI; for our Government to invest into a seed bank, it is doubtful Government could develop this into a profit-making sector, we do not have the skills for this. FD1 continued, However, Government can introduce effective policy to encourage businesses to consider these seed bank companies, as long as these companies comply with our import regulations.

FD2 explains, Government policy is such to introduce methods which can benefit business and our overall society. You mentioned NGOs, we have many scattered around Myanmar, these groups come with their own agenda, some are engaged in food resources and offer training, others are concentrating in developing a cottage industry where our very poorest can gain some skills at making handicrafts. There are others who concentrate on one particular sector within the community and provide education and other wonderful things, Government supports all these wonderful intentions for our people to develop and climb that ladder.

RF1 adds, rice that is grown due to NGOs engagement is not calculated in GDP, it is not exported under the Myanmar/NGOs licence, and cannot be sold or distributed to another location, the rice can only be consumed at the location or village where the NGOs have approval to be working there. RF2 and RF3 explain, there are no business links or funding provided from MRF to any of the NGOs, except when requiring personal translations or security. However, we have meetings and liaise with NGO officials who provide a wealth

of information and support. FD1 adds, Government agricultural departments and MRF have a mandate to work with business to develop methods for increasing sustainable grain production, but this is not sufficient, we also discuss and explain and encourage value-adding instead of selling the raw or basic product to other countries.

FD1 added, throughout the Ayeyarwady Delta I can tell you Government has spent many years teaching and supporting farmers as well as showing them the value-adding benefits of using more fertilizer on their crops, to increase the yields, how and when to spray.

FD2 explains, Government collects Taxes from exports and local supply chains and from retail outlets if we talk about rice alone, all of this adds to the final year GDP; however, Government suspended Tax on broken rice exports to China during the last quarter of this year 2020, as China suffered terrible flooding. Our Government understand how catastrophic flooding can be to a territory, you lose months of work and in many areas, recovery takes years. Here I am telling you that money is not everything, China was here to help us during 2008, we are here for them during their crisis.

RF2, comments, your question is put very simply, grow more with less or add fertilizer and everything will work. Farmers and millers understand quality in, means quality out, the investment needs to buy 'quality of all inputs' is the problem, if we look at Thailand, they use over 700 litres of fertilizer per hectare, our farmers use 50 litres, remember our Government have three fertilizer plants providing subsidized fertilizer to farmers but they do not have the funds to buy these chemicals. RF3, adds, farmers cut back on the input costs. The farm-gate price dictates much of the rice economy, Government has had this problem for the last 30-years, rice is often used as a political tool, the price of rice must be affordable for our people and this means tight controls on costs made by the farmers and miller's.

FD1 points out, Government would enjoy higher quality rice exports as we can generate high taxes, but this is not as simple as your question suggests. Government must consider all options to alleviate poverty and increase taxes so all our peoples' can benefit. FD1

comments, MRF engages with our people when deciding policy; we must work with them, otherwise, they will not change just because we say you must. FD1 added, *“we cannot copy/paste another countries Agri-policy, we are developing our own that meets global standards”*. Other problems would be policing unliked policies, we do not have the manpower for this. Our direction is to make clear what we must all work together to increase yields and farm-gate prices and exports to new markets.

FD2 adds, infrastructure needed to support FDI and new downstream ideas will take a few more years to develop. Government should engage with everyone working in all sectors, at MRF we want to assist as best we can, but we are not trained in everything and need joint-working relationships to enhance our exports.

RF1 explains, partnership discussions work well when we open our doors to FDI, working with local partners and foreign investors is a key driver for the Myanmar economy. RF3 adds, we must not forget when growing food, it must be safe to consume, everyone has to be trained and responsible not just rely on the Government for developing policy, we need businesspeople to bring ideas to the table.

RF3 mentioned, rice produced under the NGOs cannot enter the rice marketplace, we often find some evidence of this practice and trying to correct this can demand resources we just do not have, often we meet with the NGOs and demand they take responsibility for this problem.

4. 9. 4 Supply Chain Networks Programme Underdeveloped

FD1, we have many links for farmers and millers to contact other rice agent businesses around the country, everybody in agriculture has a mobile phone. As I mentioned before farming and milling are family businesses, and everybody tends to use the same people to do the same job. RF3 adds, if you are wondering why this is the reason it’s because everybody is waiting to get paid at the end or at the farm-gate collection, when final payment is given to the miller; then everybody gets paid. FD1 adds, usually, the miller

has paid the farmer outright, ownership is clear and for shipment purposes the miller must have a licence to export to another country or a business license to transport the rice to another company within Myanmar.

RF1 points out, buyers usually arrange the transportation or export shipments separately, they control these costs and often do not share the cost amounts or price with the millers. RF3 adds, our infrastructure is poorly maintained, we have to move the rice in stages from the miller to a larger village for drop-off and collection by a larger truck that can enter the village. Other times, buyers have their own trucks and collect directly from the miller removing all added costs from the miller's final price. FD1 explains, Government policy for food products in transit must include ownership certificates produced by the millers, showing an invoice and payment, or retaining ownership documents if they 'miller' will sell at a retail site which they can show proof of such as an invoice or ownership or a rental agreement for a market stall.

FD2 explains, Government is building new road and links and are expanding the rail links from Mandalay to Yangon, this will take many years to complete, but once ready the movements of heavy grains will be faster and should also be much cheaper than current transportation costs. FD2 adds, until these developments are complete the millers and buyers work closely with warehouse owners and shippers to move the grains around the country or directly to the ports for export. FD1 explains, Government understands where businesspeople can or try to take advantage of our farmers and mill owners, to reduce this problem, Government provides updated information of the farm-gate price in all regions each day when harvesting has taken place.

FD1 adds, Government also informs farmers and mill owners to complete the agricultural registration before and after milling, to enhance the collection of information which is shared and recorded across the buying process or as a licencing function in case people become sick, Government can investigate. RF1 adds, companies shipping names and contact information are provided when transporting around the country, average prices are explained, information on trucks that are not full are declared at the main village

office, to link farmers and miller with individual transportation groups. Much of what is explained does not account for prearranged contracts between millers and buyers directly, these can be for delivery to certain markets around the country or for direct export to a customer abroad.

RF3 explains, a business practice here is for an investor with a business licence to purchase large quantities of rice, they will arrange a rice contract with a farmer, the investor lends the money at stages to the miller, meaning the investor will be responsible for the supply chain activities, they will buy the inputs and pay the farmers a small cash advance each week through the mobile banking app, to cultivate and maintain the crop.

FD2 describes, the farm-gate price is usually using the supply and demand formula, you can imagine all farmers tend to sell at the same time suggesting oversupply, which brings the price down, here the investor agrees to sell at the farm-gate price or buys all the rice from the farmer as part of the initial deal for a stipulated price, then makes final payment to the farmer less any advanced payments made to the miller and farmer. FD1 adds, Government offers information through local Government support broadcasting through the radio service; shipping prices are confirmed between the larger cities, so farmers and millers have more information to decide on the best options. Government informs everyone that has a loan payment to repay once they have been paid, delays in payment or failing to pay will result in no more farming support for the names person or on that actual land where the original loan was arranged. Government cannot guarantee these services and places itself in the centre to offer a 'transparency of information' only during the farm-gate pricing week.

RF1 points out, contract farming is still a new business model and in part is similar to the business investor model, however, here the farmer and workforce are not engaged, only the land is the agreement, contract farming often is controlled by the company directly, the supply chain and inputs are controlled and administered onto the land. RF3 add, these companies are supported by the Government contracts and often have partnership standards, meaning Government is willing to work to invest in the production systems

offering Tax incentives, but these are not simple deductions these incentives can add up into the millions of US dollars. FD1 explains, these companies tend to employ over three hundred or more workers at each facility, this is an added feature as training is provided to our people, they are able to earn a comfortable living and improve their lives. FD2 adds, much is not all of the finished products processed through the contract farming contract are exported to Europe and other Western countries who demand high-quality products that also meet high food safety standards.

FD1 explains, we cannot know for sure if there are still unscrupulous businessmen trying to get a better deal at the price of the farmers or miller or wholesaler. The increased use of mobile technology has made getting the farm-gate prices across a region easy to confirm, farmers and millers know other farmers and millers that share the price openly. RF1 adds, when there are problems between these buyers' local Government officials will engage both groups for a speedy resolution, often there are difficulties with payments made or yields that were expected and not achieved, then one party tries to renegotiate at the last minute.

FD2 adds, farmers are instructed to always have a contract; this is where the problem start if the farmer or miller do not understand the terms within the contract. Other times are family links whereas the farmers and millers work together, and the agent is a relative, each has their jobs to do; but the buyers are not the same and just one family member has the contract, this person has not discussed the contract with other family members; and if there are problems the buyers refer back to the contract alone; then families complain and involve the village leader. RF2 explains, the local official is educated and can demand to review the actual contract; and should this be one-sided or in favour of the investor only measures are taken to make the contract void or to charge the violator with bad business opportunistic behaviour practice that is illegal. RF3 adds, Government policy is not to be the one that finds fault with contracts negotiated between 2 parties, however, when there are clear 'legal' violations, Government will step in to protect the victims from fraudulent business practices.

FD1 points out, ultimately, farmers and millers are responsible for a huge amount of the work in the business transaction, often they cannot guarantee yield volumes or quality, but that does not stop them from doing the best they can. FD1 continues to explain, in this case it should be understood that the investor or buyer-agent cannot claim the lion's share of the business deal. If these individuals are unable to claim and share what was agreed, then local Government arbitrations can be final for all included. Here the contract and any other reasons are presented and processed as quickly as possible, the contract will be modified to take these changes into account so each walk away with what they expected as a per centage of the original contract.

FD2 adds, where Government fails within supply chains is labour exploitation, farmers or millers agree to specific financial payments no matter the yield or quality of rice milled and bagged. Here we identify abusive labour controls where there are no legitimate working hours, one weekly off day is not permitted, no payments for sickness, minimal protection from the sun or other weather conditions or no provision of safety equipment for the labours to use or protect themselves from hazardous chemicals, to mention a few.

RF1 adds, rice traders have established themselves into the fabric of the farmer and miller's world, these people are registered as business and often have been trained in rice selection with links to larger wholesales buyers around the country and sometimes outside for exports. We find these traders can be fully funded to prepurchase before the crop is harvested and transact on the day the farm-gate price is known. RF3 comments, Government regulates these traders, and all transactions are recorded, cash is not recommended as this causes buyer-frenzy at the point of purchase of where the traders and rice sellers are situated. All major purchase must be concluded through bank transaction only, here a detailed record or licence plate of what inputs where use, which brands of fertilizer and herbicide and weights before and after milling, who was the miller, and all transaction payment must be recorded and mentioned in the final payment. This information is also recorded in the miller's production record book.

FD1 explains, we do not have the catastrophic events each year, the last was 2008, no Government plan was ready, how do you plan for such a disaster. All Government can do is react, we have weather information and local Government announces safety measures. Our country is poor, and we cannot provide huge shelter or somehow protect the land from the rain, in a storm everything can be lost in a few hours, including people's lives.

FD2 adds, training for weather related events can mean heavy rain or a reduction in rain, this two-cause destruction, the first, everything can be washed-up, the second requires the purchase or drilling of water near the farmland, this can be very expensive and mean the difference between investing or losing the crop completely.

RF1 points out, Government understands the costs to the farmers, as of now we encourage the planting of rice seed during two seasons only, one dry and one wet called paddy. Calculation when to start planting is getting hard to do, due to the climate changing phenomenon, but we use every technical system we have to inform and announce rain fall or monsoon arrivals. RF2 and RF3 discuss, Ayeyarwady Delta is known as the rice bowl of Asia, we were often able to plant three rice crops per year, over the last several years we are lucky to get two rice crops, the monsoon season start later and finished earlier.

FD1 adds, Government concerns due to global warming is a constant discussion in MRF and across all of the agricultural departments, we have created new policies to encourage planting and farming of healthy crops such as legumes of all kinds, which requires much less water and attention than rice, these types of food are very popular in Western countries where vegetarianism and veganism have grown into large popular food choices and lifestyles.

FD2 adds, Government has engaged academic from the MoE to educate the business communities on these two new food life-choices, there is a drive from the agricultural ministry to introduce value-adding to some of these products such as dried spicy peas or

beans with garlic to explain a few; but businesspeople are somewhat cautious at the moment. FD1 explained, India has always been a major importer of Myanmar legumes, now however, India is not an attractive marketplace to export our legumes too as they are demanding more tasks must be done to the beans in Myanmar at the costs to our farmers, making this unattractive or cost prohibitive.

RF1 adds, educating the business minded person to look at exporting to other Western countries such as those in Europe, UK, Australia, and USA offer promise, Government has already established trading policies with these nations. Government proactively informs farmers and millers and provides training in value-adding food ideas, to be cautious and look at opportunities in the marketplace.

RF2 explains, even in Myanmar the 24-hour quick shops are springing up everywhere and offer opportunities for farmers and businesspeople to provide a product made from local foods, to compensate for global climate change. These can be for local consumption at first and even exports within ASEAN to compete against other local ASEAN food items that we import.

RF3 adds, In Myanmar we have snacks from many ASEAN countries that are much cheaper than our locally produced food snacks. It sounds very simple, but our people have the *“quick buck mentality with limited risk”*, you cannot blame them for this approach, and this is why foreign companies buy our raw products, export them, and turn them into snacks in their home country and reexport them back into Myanmar.

FD1 points out, your question talks about what will we do, the real question is what can we do; and the answer to that question is *“very little can be done except the sharing of emergency information to save lives”*.

4. 10 Bankers Thematic Category: Value Creation (VC) & Value Chain Analysis (VCA)

The third case study looks at the Myanmar Banking Institutions, both proactively claim *“to improve the quality of life in Myanmar through access to financial products and services”*, both provide financial assistance and direct Government secured loans to the farmers and millers. and to other businesses within the Agri-sector.

The same sixteen questions were asked with the intention of gaining direct feedback from those who communicate directly with mediators and who are affected directly by established Government policy. The thematic questions are found in table 4. 9.

Table 4. 9 Thematic Category Bankers Interviews		
Thematic Categories Constituents Review	Number of experienced participants	% of Participants that attended
Value-adding (VA)		
Value-adding is misunderstood or not recognised as beneficial.	4	100%
Not all-Government incentives can be accessed by mill owners.	4	100%
Training in any agricultural business requires education.	4	100%
Moderators and Mediators are in fact collaborators.	4	100%
Thematic Categories Constituents Review	Number of experienced participants	% of Participants that attended
Value-adding Processes (VAP)		

Value-adding is a new skillset where additional money can be made.	4	100%
Information on value-adding needs more encouragements.	4	100%
Agricultural products are dictated by a market pricing structures.	4	100%
Funding policies are lacking in variety and difficult to administer.	4	100%
Thematic Categories Constituents Review	Number of experienced participants	% of Participants that attended
Competitive advantage (CA)		
Contradicting policies are the cause of frustration.	4	100%
Food safety policies are a competitive advantage driver.	4	100%
Government policies are a function to support the people's needs.	4	100%
Business & Government should engage together to take a global agricultural view.	4	100%
Thematic Categories Constituents Review	Number of experienced participants	% of Participants that attended
Supply Chain Networks (SCN)		
Supply chain and infrastructure go hand in hand with the country's development.	4	100%
Proof of ownership of products enroute is essential.	4	100%
Multiple actors and competition in this sector have reduced transaction costs.	4	100%
Climate-Smart agriculture and acceptance of agricultural responsibilities.	4	100%

Table 4. 10		
Thematic Categories Selected		
Thematic Categories Selected	Number of experienced participants	% of Participants that attended
Questions on Value Creation (VC)		
Value-adding is undervalued and not appreciated as commercially beneficial to mill owners.	4	100%
Agricultural products are dictated by the market price, not by value-adding processes.	4	100%
Value Chain Analysis (VCA)		
Business & Government should engage in competitive advantage drivers and adopt a global agricultural view.	4	100%
Supply chain development reduces transaction costs.	4	100%

KBZ & AYA Banks

Bank Director BD1, BD2.

Bank Managers BM1, BM2.

4. 10. 1 Value-adding is undervalued and not appreciated as commercially beneficial to mill owners.

BD1 explains, the idea of creating or adding value suggests a change of some kind in a set of processes that should increase the value after a step or stage has been completed. In the case of rice, there are several stages or methods that can affect each other. It starts from

the actual raw materials and the quality of these, such as the seed. BD2 points out; on its own, each raw material has intrinsic or some value; otherwise, why would a farmer buy it, store it or pay the miller to mill the rice as a final process unless there is value identified at these stages.

BM1 adds, *"We often see farmers and miller storing inferior quality of broken rice that they use for animal feed later in the year. This has limited consumer value, but the rice has a higher value when given as food to animals"*.

BM2 suggested, *"value must be identified at each stage, and where cost and total value to each, can be calculated"*. Our farmers and miller look at producing as much unbroken whole grain rice as possible as this is where the more significant profits can be attained. BM2 explains that farmers and millers also identify the value of the harvest related to the quality of the seed and other inputs such as how much labour, fertiliser, or herbicide they use. If these inputs are of poor quality, the better production option can be towards animal feed and not separating or bagging the rice for sale at the consumer market.

BD1 points out; there are different costs associated with animal feed production and consumer rice 'to eat' production; *"if this can be identified at the start, savings through reduction in processes can be introduced"*, thereby adding value to the right market.

BD2 explains Government looks towards improving society; we understand that business is a large part of this as people are employed, value-adding, which is either a way to add or remove stages can be calculated in terms of a cost.

BM2 adds that the buyer will ultimately understand the value and compare this to the actual cost or selling price. You ask about rice; here we have rice as whole grain and white, which is sold as a premium product. This will be more expensive than general unbroken rice, which is not all white but offers some slightly darker grains; *"value is created through separation of grains by colour"*. BM2 continues, the calorific values are the same, yet colour plays a part in the selection and here is also a cost to the miller to separate the colour grains. A machine can do this quickly; we have many businesspeople who have invested

and availed of the government import Tax exemptions scheme for this type of machine. But these machines need a 3-phase power supply which is limited in many villages, suggesting the separation of rice is by hand and is recorded as a labour cost, added to the process and final selling price. BM2 continues, furthermore, the grain colour shape and size would suggest the type of packaging and weight; all these stages should provide value-adding and hence improved value at the point of sale where additional profits can be achieved.

BM1 points out that we see millers willing to provide additional processing as a service to the buyers with specific plastic packaging and labelling. However, you cannot guarantee additional profits if many steps are required by government policy or the buyer to ensure a safe food product or the buyer requirements before purchasing the final products. The farmers and millers must negotiate the best price available to sustain value-adding processes long-term. Otherwise, there is no business planning identified, and that is a bad investment for us when providing the loan. BD2 explains that our customers understand what incentives are or might be availed of; imported machines specific for farming have a Tax freeze for first-time purchases. There is a limit depending on the farm size, and other machine tools have a VAT claim-back certificate; this can be claimed back by the customers.

BD1 explains, over the last years, there has been a broad diversification in agriculture; first, we have more people signing for the land-lease programme, which gets people working on land they have investments in, such as labour and farming tools to start. BM2 adds, these businesspeople and our customers have a mixture of products that might be better if they concentrated on one or two, but they are growing food to eat for themselves as well as trying to operate a business and sell some of their produce.

BD2 explained, customers took advantage of the fisheries policy to grow fish on land where it is difficult to grow rice, others concentrate on legumes, and the rest concentrate on rice, both dry and paddy. BM1 adds poultry is the new business opportunity since we have a thriving growth in the fast-food industry and people like to eat out. Each business

type requires different services and have access to a select government support package. BD1 points out; retail is the key for our customers to understand; these companies are influential in the marketplace; they demand and have the funds to buy whatever they see their customers want. Packaging and labelling machines of all sizes have been a growing business for us in terms of loans; food cooking and cooling units are a growing trend in larger cities; we now have many local delicacies available at the retail stores. BD2 explains that the Bank and Government have difficulty convincing the mill owners to consider investments into new milling systems; these are substantially more expensive than the average house on the market today. From an international position, value-adding can be concentrated; increasing a high-values product for direct export can benefit those involved, more work is needed here.

BM2 explains if you make a loan application to purchase farming equipment or avail of any of the many Government supporting investment programmes at the Bank, we need much more from you. We are not giving government money to you; we are loaning our Banks money to you. The Bank wants to know if you understand your business, the processes and do you already have buyers for your product; if you are growing rice, we understand this business model. BM1 explains we require a site survey; we can quickly check using Google Earth; depending on the loan, we might ask for a soil test, ensuring your capital investment costs can be earned back and payment returned against the loan.

BD1 explained, *"it is pointless trying to buy a tractor for only two hectares of land; it would be cheaper to rent these machines when you needed them"*. We have many companies involved in machine rentals across the country. BD1 adds, second, we must be sure you know what you are doing. We ask for proof of attending some of the many 'free' MRF courses for adding chemicals to the rice or others to increase its yields. Some general accounting information or better if you have a family friend trained in business with some experience in what you are going to do. BD1 continues, *"if we are only talking about agriculture, this is a sector with a higher than acceptable failure rate because the many people involved in this sector have not received an education and provide just labour to the business"*. We ask if there is a plan

for generating new business, or what will you do if the yields are poor or if there is flooding, what will you do?

BD2 points out, in our opinion, education, training, and experience is what you need to support the loan application. These are the positive elements of the application process; sometimes, we can introduce the idea of a co-operative loan, bringing many farmers and their families together from one area; a sharing of resources like the machines or one tractor, this group can and always find a teacher of accounting, or a skilled person and we are able to work with them offering not just the loan but supporting them with other knowhow. BD2 stated, *"we want everyone to be a success in their business dealings, the facts are clear, this is not always possible, and the bank must protect itself"*.

BD1 explained, *"business is always about risk"*; the Government is not involved in this personal risk but considers how it invests in the future for everyone. BD1 adds, *"I do not agree that government funds are constantly spent on training; the people involved with an idea or business venture should be responsible for this"*. After all, they are intent on making a profit from this venture, not the Government, all they want is to collect the correct amount of Tax.

BM2 points out, the banks work with Government on developing the business sector, *"we are always supporting the village training programmes, we have a small team of mature accountants that spend a few hours explaining 'outgoings and income', how to write these down, what, and how to calculate labour, how to understand the mixing of chemicals like fertilisers"*; and we answer as many questions as we can.

BM1 explains that the Government also supports training at the village meetings, and we always see academics from the agricultural university. But people must be conscientious to learn. *"Farmers and millers arrive early to listen to some academics, then when it is time for the bank discussion, many leave"*.

BD2 adds, *"is that the fault of the Government? I think not"*? Government sets up and supports in every way possible, and we have the MRF, which does a lot of work on the ground and

with the local Bank to encourage better business practices. *"Our customers or others must understand that business needs people to learn new methods in today's agricultural world"*.

4. 10. 2 Agricultural products are dictated by the market price, not by value-adding processes.

BD2 points out, *"people want to work hard and make money"*, the Government is there to introduce proactive policies and collect a Tax; legally, there is a direct relationship meaning one serves the other, but from a practical point, these two are very different.

BM1 explained that the Government is not involved with the running of the business. There are many regulations or laws in place to ensure the business owners follow the law; if they employ people, they must comply with employment law, health and safety regulations, and other demands.

BM2 suggests the business owner makes the decision on how the business will be run, not Government. The question should be, what can these two do to improve output that has better value-adding, where both groups can make more money or societal benefit through reductions of waste and maybe exporting a better cheaper product.

BD1 explains, Government departments work closely with, in this case, MRF for agricultural development and expansion of higher-yielding crops such as rice. There is a collaborative effort for more extensive farmer and miller production regions that include Government, MRF, and the banks. First, MRF sends into the operation trained people to assess where value-adding can be identified; often, this starts at the door when the grains arrive for milling right through to the final packaging stages and warehousing. BD1 adds, value-adding is all about efficiencies through the process, take steps out or put stages in for maximum optimisation of the total process.

BD2 points out; the Bank is tasked to calculate the costs of the current processes and see how the introduction of machines can benefit output. Ultimately, at the end of the day, the Bank might become a significant partner in the operation, with government support

for Tax off-sets, importation Tax incentives and up to five years of a Tax holiday to develop this business.

BM1 adds, this is not possible for every business owner; usually, we are looking at over five hundred hectares as a minimum, with such a size, value-adding can be realised, savings established within the business, minimal but skilled workforce who are trained to operate the business quickly. BD1 suggests, *"you might change your word from interrelated to collaborator, the reason is no matter what these groups do, they are independent and dependent on each other's success"*. From creating better government policies for business or favours to collect Tax; to voting for the same Government at the general elections, leaving them to remain in power.

BD2 points out; if they want to make money, they need to. *"I said before, agriculture is a difficult business, and those businesspeople involved in this sector must be cautious"*. BD2 added, *"it is not just about buying seeds and planting; there should be an understanding of creating value throughout the operation, then looking at which parts can be improved to capture value-adding right through to packaging or the marketing of the finished product"*. BD1 discusses, where we have the need for training, most certainly farmers and millers have many years in the practical sense of running their business, *"that is not enough, these days there is a must to see how to decide on adapting the business"* because of the demands of the agent or buyer.

BM2 points out that over the last five years, there has been a boom in rice packaging at the miller final stage; a government food safety programme was introduced as a policy, the packaging displays the contents, nutritional value, and weight. BM2 adds, *"this government policy, unknowingly at first, fragmented the rice sector into regions, and now when we go shopping, we see rice from all over Myanmar, with slightly different prices and taste"*. It was a successful idea for those with access to funds or a loan to buy the packaging machines; these can be very expensive.

BM1 explained, *"before this food safety policy was introduced, rice was sold in large bins, you can still find it in some townships, you do not know where the rice is from, and you must allow or*

choose a mixture of broken rice with your order, or it will be costly". Not so in the retail shops. Those businesses that identified the opportunities developed a name brand of rice, gaining access to the retail companies.

BD1 explains, in the banks' experience, *"we see many people approach us for funding at every possible level. We have millions of farmers and hundreds of thousands of miller operators throughout the country"*. No matter how much training the Government provides or supports with academics onsite, or even when MRF or DICA invites the private sector companies to village training meetings or when foreigners are invited to attend Government-sponsored events, the fact is this. BD1 adds, *"there is always a lack of information for the farmers; they might complain, but I said before, they, the business owners, must engage themselves into finding the best ways to run their business"*.

BD2 points out; food safety demands can be identified as a barrier or enabler for a business. This is an internal operation system, *"we, the public, want safe food; we do not want just anybody to start growing foods that are not safe to consume"*. BM2 adds that education is another area, and people must introduce safe chemicals into the food growing cycle. Recently, *"I read about some rice was contaminated with fertiliser chemicals, this cannot be permitted, Government must investigate and prosecute those people"*.

BD1 suggests, *"developing a brand involved marketing this also means developing your employees' skill level, in short, the Government is deploying information at multiple levels to those wishing to be part of the agricultural sector"*. BD1 adds, if you want to be part of this sector, you must teach yourself by engaging with the many private and public departments to learn. BD1 added, *"join groups on Facebook, enrol at MRF and attend as many village training days as you can"*, these are free.

BM1 explains that a financial decision is made once the relative information has been assessed; during the loan interview, *"We take into account specific elements of the business plan and try to identify the short, medium and, when possible – long-term plans of the business applicant"*. BM1 continues, sometimes the applicant points out the buyers or presents a

contract that has to be met, such as rice production in tons. Therefore, the Bank takes a view from a proactive position or *"I should say an anticipated approach, a reactive approach would suggest a sudden change or demand, and this is something we try to avoid unless there is a calamity that presents itself to us with limited options"*.

BM2 points out that we are presented with exciting loan applications on occasions where the farmers and mill owners pivot their business model to accommodate a potential business objective, introducing reactive flexibility that has proactive capabilities. One example *"I can give you is a group of farmers who intentionally grow rice with substandard seed and minimal inputs. The output is solely for animal feed exported to Vietnam"*. The legal requirements and other costs are minimal; *"the rice is bagged in 50kg bags, no sorting of colour, just deliberately broken to a 2-4mm size"*.

BD1 explains, as mentioned before, *"there are a series of funding provisions that the banks' have agreed to participate in"*; government funding is the wrong term. Government programmes for support would be better. The banks must administer short-term loans for farmers with a land certificate.

The amount is equal to approximately \$100 per hectare; a 4% interest per month or a maximum interest of 20% is part of the loan condition. The Bank gains only 4%; the rest goes to the Government; this amount for us is to administer the application; if the loan is not repaid on time, there are additional charges per month. BD2 points out; funding support policies point towards Tax off-sets, Tax holidays and VAT claim-backs. These are all based on the land's actual size to ensure there are no irregularities in what is purchased. How these monies are used to purchase tools, machines, or introduce value-adding systems are of no concern to the Bank once the loan has been approved.

BM1 discussed, outside of the Bank, *"there are many private loan companies that also address funding for the same and or other reasons"*, they may process the loan application faster but requiring limited documentation to secure the loan.

BM2 points out, "*Agri-financial loan companies insist on supplying the inputs such as rice seed, fertiliser, herbicide, and any tools needed for the harvest*", as well as demanding a higher interest rate per month. BM2 added, and overall, suggesting these companies are making money on everything needed in the loan application, "*leaving the applicant hoping the yields will be substantial or forfeiting everything*".

4. 10. 3 Business & Government should engage in competitive advantage drivers and adopt a global agricultural view.

BD1 points out; our country has only started to understand the global marketplace; time and investment into understanding the processes through education are still far from perfect. BD1 adds that government policy has caused many problems over the years, especially where there are contradictions between one policy and another. BD1 points out that the sudden introduction of quality standards was vague initially; the policy explained what was required to meet this standard."

BD1 continues; however, *it was many months before farmers or millers were introduced to people from Government that could explain or train on these standards*". Again, the policy was introduced but was not effective from a practical point of view. It takes time for Government to establish "*what I call proactive policy; even today, we have contradictions in funding policy, and this confuses everybody*".

BD2 explains, "*Myanmar agricultural sector requires a transformational change, linkage to supply chains and qualified agents, access to the buyers and a clear understanding of the needs and wants usually identified in the contract*". Once we start implementing measurements at all these stages, we can then introduce value-adding, thus starting what we can only imagine as policy and competitive advantage methods working for a business.

BD2 discusses, "*the recent land-lease policy has been received quite well, there may be improvements as time goes on*". Here we have a situation that encourages either family members or businesspeople to lease land from the Government to grow food products sold locally. There are provisions to export these food products, but that is another system

via DICA, an export licence is required, and this can take time. BD2 points out, *"in some parts of the country; the same policy is met with restrictions, meaning the Government only permits the growing of specific food products, taking the control away from the family or businesspeople"*. This is baffling, as there is no actual chart that informs the applicants what they can and cannot grow in these areas until after a lengthy process that takes several months to complete.

BM2 explains that the Government is responsible for our safety; where food is concerned, *"there must be effective food safety regulations and laws to punish those lawbreakers that try to defraud and harm all of us"*. The policy suggests food safety across the processing of food; it captures every possible stage that might be done by a different family and explains what food safety is and how to ensure they do this correctly.

BM1 explains your question about rice, *"it starts with the general inputs, and these must be bought from licenced dealers"*; farmers must be able to show the receipts of these purchase if they are inspected. BM1 adds, *"much of the food safety functions are targeted towards the millers"*, these people sort and package the rice and ensure or must ensure the correct label is shown.

BD2 points out, *"if you are in the business of parboiling the rice for local or export consumption, the processing facility must be licenced through the government food safety agency"*. All these stages can be considered to be adding, but our Government must comply to international food safety standards as expressed by the UN. At this moment in time, rice is exported in its basic raw form, and the government G2G contracts are based on price alone, mainly when exporting to Africa. BD2 adds; however, the African economies have improved, and these consumers have higher disposable incomes and buy better quality unbroken rice from Thailand. *"There is no competitive advantage if you are racing to the bottom in a pricing structure"*.

BD1 discusses, *"we have a poverty crisis in Myanmar; everybody must eat, and for many, this is what they concentrate on each day"*. The rice seed is a concern; for higher-yielding rice, this can be expensive, we should concentrate on producing rice, and as much as we can, other fast-growing crops can also be grown we have excellent soil in Myanmar. BD1 adds, *"the land-leasing policy is a step in the right direction, but it's not perfect"*.

Oversupply of a product can have consequences if you consider price as a factor, but we need to feed our people and whatever is left Government can export. BD2 explains your point on higher yields; this question is confusing as only the business owners will determine the type of rice grain they need to grow and at some point, make a profit at the farm-gate.

BD2 adds that this is not a government decision to decide the quality of the inputs; however, *"there are policies that permit the Government to control rice prices and compel farmers to grow and overproduce"*. Thereby, creating a surplus, not only for rice but beans and vegetable oils as well. Only *"during times of economic emergencies does the government step in to use these policies"*, but they are there to be used.

BD1 explains we do not engage in any work with the NGOs, *"I am quite sure they are doing some good for our people spread across the country"*. We often see these people at the village training days, *"but this is more about saying hello to meet other people both in Government and the private sector; the village leaders invite them to attend"*, the Bank does not have a mandate to provide services to them.

BD2 points out, Business and Government are a joint venture in the making. They need each other and have to find ground to work proactively together. If a policy is introduced and the benefit to business is not explained, nobody will comply, and the government would find it difficult to police.

BM1 adds, the process is a simple one; village leaders are local government officials, they report to the regional Government on many issues or complaints or investment needs. After several months, the responsible department will begin to prepare a policy proposal

if there is merit; in the case of your questions, rice is under MRF. BM2 adds, people from the MRF department will conduct and lobby the Government for whatever there is a need for, and sometime later, a policy 'in principle' will be announced. This is shared with the village leaders that take a few months to deliver the proposed policy change and report back to explain how this will or will not work in their region.

BD2 questions, *"I am not sure what you mean by a global view, Myanmar complies with ASEAN, UN and WTO export charters that ensures food safety measures are in place, labelling is correct, and packaging meets the export obligations"*. BD2 adds, *"I do not know all the policies government has proposed within the agricultural sector"*; however, the Ministry of Agriculture and Irrigation (MoAI) collaborates with MRF and the private sector.

These three groups are responsible for working with the Government to craft agricultural legislation, *"you might say that competitive advantage factors are discussed"*, but I have no idea if they are.

4. 10. 4 Supply chain development reduces transaction costs.

BD1 points out, there are, at this moment in time, several bridges are being constructed around Yangon and many more around the country. New rail lines and repair or replacement of the old ones from Yangon to Mandalay and further North. If you look at the Yangon Port expansion project, this will take two years and allow five times as many ships to dock and unloaded in half the time. BM2 adds, transportation is expensive; the problem is the initial cost of the trucks and limited repair shops; businesspeople buy these trucks second-hand from China. All of this is part or will be used by the supply chain people, including NGOs, I am sure, but everybody will be able to use these infrastructures. BM1 explains transportation or the use of tractors and trucks are the most convenient services for moving bulky grains around the country. Usually, the farmers will transport their harvest to the millers; they complete the milling and sack the output. BM1 adds, from here, larger trucks move the rice to wherever it must go to.

I am not sure of any specific policies other than the food safety and transportation policies that everybody must follow. BM1 adds, the millers ensure, *"as I explained, packaging and labelling and the trucks should not be over-loaded or unsafe while on the roads"*. Usually, the rice traders or agents arrange the transportation element with the miller's as they link to the buyers.

BM2 explained the buyers are the communications link both up and downstream; they visit the farmers and check everything, *"here, they also make partial payments to the farmers, which are deducted once the harvest is complete"*. BD1 explains the development of multiple infrastructures permits economic progress; the question remains for who, those that are interested in starting or expanding their businesses to other parts of the country. Getting products delivered to farmers has always been tricky because of the remote locations, but they still get there.

Otherwise, we would not have rice every four months to buy at the store. BD1 adds that there is enough physical evidence indicating a reduction in agricultural transaction costs because of the growth in the business sectors supporting the agricultural communities. BD1 confirmed, *"I mentioned the many government funding support programmes, and I have spoken of machine and tools leasing companies to mention a few"*.

BM2 explains Government policy is actively supporting a level playing field for the business community; no company wants to be punished for cheating others, you can quickly pay the costs of public humiliation. Due to the nature of farming and milling, deals are made and paid on the spot, *"it is very difficult to identify opportunistic behaviours or poor negotiations"*.

BD2 provides information on crop insurance, *"if you are talking about a form of insurance, the answer is, no support is provided"*. Government will launch all of its resources during a weather crisis. BD2 added that the Government is promoting a new policy directive called *"climate-smart agriculture; this entails training the agricultural communities to be responsible for the inputs they buy and how to manage the soil"*. This often requires farmers to be

knowledgeable in the chemicals they are using on the groups and how the water is drained.

BM2 adds that farmers overuse fertilisers and drain the paddy field water away into streams where other fish farmers are growing fish some miles away. *"This ends badly as the fish die due to the fertiliser removing the oxygen from the water"*. Nobody knows which farmer released the water or how far upstream the water was released.

BM2 explains, *"this can be considered as a major environmental event for all concerned as the fish are dead with total losses for the families involved"*. Almost everything is on a credit term, meaning payments are made once the fish are sold. Training and educating farmers, in general, are vital.

Mistakes, when made, cause substantial damage. BM2 continued, the Government is not in a business contract, if such events happen, they will investigate at the village level to identify the culprits involved, *"but you need to understand that if a group of people decide to grow fish in a river, they only need fish cages, many farmers use the river"*.

4. 11 Summary of thematic category obtained from all interviews.

Table 4. 11 Summary of each Thematic Category

Government Thematic Categories	Value Creation (VC) 1. Value-adding is misunderstood and seen to be costly. 2. Value-adding processes are divided across different groups of people.
	Value Chain Analysis (VCA) 3. What policies represents a competitive advantage opportunity. 4. Established supply chain networks are inefficient.

MRF Thematic Categories	Value Creation (VC) 1. Education on value-adding across one hundred dialects is problematic 2. Funding is available for value-adding processes
	Value Chain Analysis (VCA) 3. Practical applications are needed to develop Competitive advantage. 4. Supply Chain Networks Programme Underdeveloped

Bankers Thematic Categories	Value Creation (VC) 1. Value-adding is undervalued and not appreciated as commercially beneficial to mill owners. 2. Agricultural products are dictated by the market price, not by value-adding processes.
	Value Chain Analysis (VCA) 3. Business & Government should engage in competitive advantage drivers and adopt a global agricultural view. 4. Supply chain development reduces transaction costs.

4. 12 Summary of the thematic review discussions

4. 12. 1 Value-adding Goals

4. 12. 1. 1 Government.

The response from the moderators for value adding was identified as an overall government goal, however, there were limited explanations provided on how policies for value-adding were being introduced to mediators and how effective they were.

Often a policy was explained as offering many benefits to business and society, however, there were no further explanations presented to substantiate or identify what these benefits were. Moreover, training was highlighted as a concern across the agricultural sector, and here there was more debate, which suggested that when there is increased training at the rice milling stages a better understanding for value-adding would be known. A common idea which remained prominent in these interviews was the idea that “value-adding processes are difficult to introduce”, the point was supported by explaining the size of the problem, referring to the numbers of worker in the agricultural sector. One point which was expressed is that these are significant barriers and at this moment, these are difficult to overcome and “will take time”.

4. 12. 1. 2 MRF.

The interviews with the MRF group offered more practical details as they work with the rice millers directly. “Competitive advantage is Government policy”, this statement was clear, however, there was limited discussion offered to explain how this could be achieved and where the government would focus its resources in the Ayeyarwady Delta. A policy document was provided, and certain sections was translated by the MRF group. One part explained the reasons for the agricultural sector to engage in “creating or adding value along the rice production process”, some examples were selected to explain how this could be achieved.

Moreover, the policy linked directly to other policies that offered a much broader concept of value-adding across the sector as a whole. One policy link outlined the abolishment of sharing or buying of “poor-quality rice seed”, the explanation provided to support this was discussed by the group to “achieve higher yields”. However, when asked how this could be done, the response was “through enforcement” which is explained in the food regulations. This discussion was difficult to assemble as there were numerous discussions on a lack of staff to train, monitor or enforce agricultural policy. Further questions on how this could be achieved were not explained, other than, there is a need for more staff.

Moving on to the land-leasing programme, there were some very general points mentioned that were both positive and negative, suggesting getting people on to the land is great but many grow food for themselves and don’t have sufficient capital to buy enough seed or training to commercialise the land.

The group overall statement was that “Government talks about land-leasing as the future competitive advantage”, but we do not understand how this can work in the short-term. Further discussion on the final point suggested that the government vision for land-leasing is a failure in the making, as the people are ill equipped to achieve a long-term competitive advantage for the country. One group member said it’s just a vote winner, however, others expressed that it would have been better for the government to have introduced this land-leasing policy in rural areas, where land-less people could be relocated, and resources provided in a specific area.

This line of thought was replicated when the group was asked about value or value-adding processes at the millers’ levels, the responses pointed out that the policies are frequently updated and extremely legal in detail, and difficult to understand. This was suggested as being a significant barrier for miller and those involved in value creation.

4. 12. 1. 3 Bankers.

The banking group explain from the start of the discussions that they were not a part of government, and that they were responsible to their shareholders. There were, however, responsible to work on specific government initiatives when policy dictated, explaining that these revolved around investment into a specific sector, such as the agricultural sector for the deployment of short-term funding or capital equipment investments. The discussion pointed towards methods or means of how the agricultural sector could achieve a competitive advantage. One point suggested that “capital investment opportunities in machines” are hampered by inconsistency government policies.

The discussion suggested a lack of government direction, the government have long-term ideas; often the policies are inconsistent with short-term goals, introducing a cautionary response from the millers. It was mentioned that “Government is there to introduce proactive policies for business to thrive” these must be short-term as well, otherwise nobody can see the long-term vision. When asked about what type of short-term ideas are in place, the food safety policy was the first example, this was introduced within a few days and changed across the food sector were enforced at provincial and local level. We understood why this was needed but the deployment of the policy caused concerns, finally it took many months to resolves issues that should have been dealt with during the policy scoping stage.

When asked about value-adding, again, examples discussed onsite potential at the milling stages and post-milling, policy was explained for low-level investments and tax incentives, which millers could avail off. These worked well with a select group of millers, meaning, those with 3-phase electrical access, this represents about 12% of the Ayeyarwady Delta only. This policy could have been created to target a specific group of millers and not involve the rest. A question to understand why the government should target a select group, the answer was that the banking community across the Ayeyarwady Delta must offer and display and explain the policy to those interested in the incentives,

these are pointless if the millers don't have 3-phase access. Another policy was explained, this being land-leasing, some of the points mentioned replicated what the MRF had said, suggesting dissatisfaction with allowing this initiative to be on any government land. The bankers explain a resource problem for them and concurred with MRF group that the land-lease programme should have selected a certain province or a specific place. This dilution of resources heightens the minimal skilled workforce problem, many are not trained and don't have agricultural skills. Further discussions pointing towards value-adding the overall response was "the government has initiated a value-adding processes" that is policy deployed across the agriculture supply chain, unless our workforce is trained in this skillset, how can they contribute to a competitive advantage, the best they can do is learn how to feed themselves first.

4. 12. 1. 4 Summary of Value-adding Goals

Government has a long-term vision but lacks resources in many forms of deploying the vision in short-term segments. Policies are deployed on a regular basis, unfortunately, mediators are reluctant and avoid employing them within their rice mill operation. MRF understand what the government policies initiatives are for value creation, however there are concerns on resource allocation for the MRF group to deliver on the governments vision. Criticism of government policies is evident, and this has introduced a negative outcome within the group. The banking group expressed dissatisfaction with the many inconsistent government policies that offer a bright future for everyone but are selective for practical reasons. This indicated a social identity concern or 'them and us', meaning many policies sound and look beneficial for all, indicating the government is work hard on solving these problems. However, the really is these policies are not for everyone when you get into the details. Moving on to one main topic concerning value creation the overall response indicated that this would be extremely difficult and could take decades, the workforce is untrained, and many are suffering from abject poverty, government policy should concentrate on fixing this problem.

4. 12. 2 Training

4. 12. 2. 1 Government.

When introducing the questions on training, the overall response is that “training is a real concern”, and the resources needed to fund this are a matter for government ministers, not just the agricultural department. The overall aim was explained, the vision is to “upskill the workforce through continued training programmes”. The question of how effective policies were was asked, the main response suggested that “policies are required to deploy resources” to achieve the government aim. These are achieved and explained in detail in the policy. Without this, the MRF would not be able to fulfil its mandate.

Addental information was sort to establish how policies are created asked where the demand originates. Here there was limited response, except that the overall government vision points us to improvements across the country. A point of contention was if MRF was sufficiently resourced to deliver on the vision, the reply was “we must do what we can”. The transferring of training responsibilities to the MRF and its departments supported with minimal resource allocation could be considered negligent, if training is a real concern why isn’t there more emphasis on it.

The discussion moved back to the training effectiveness across the agricultural sector, again the response pointed towards the general agricultural policies (GAP), it was explained that all regions where millers are registered each one has completed this series of training programmes. Further understanding of the FDI and the training policy was asked, “licences are approved” for FDI into the agricultural sector. However, specific training must be provided to their workforce and delivered by the MRF. Foreign companies (FDI) must provide the necessary training and development of the labour force - transferring new skills and knowledge to them, a small training fee has been established which the FDI must agree to MRF when they deliver the training course.

4. 12. 2. 2 MRF.

The questions started; can you discuss training needs? The first answer offered was the “food safety regulations policy”; this was very difficult to deploy at first, for the millers they had to learn about production recording and write the results in the production book. The group pointed out that no additional resource support was availed of from the government. Over several months “we trained and worked with hundreds of millers”, some refused and don’t have a license to mill or sell. The group explained the training policies we advertised in many locations such as the banks and government offices, but these policies are confusing and difficult to explain to uneducated people.

The group explained, millers are now responsible for the bagging and packaging and labelling of grains, these are additional tasks, we realised those millers who couldn’t understand refused to complete the licence. They suggested “we cannot police them” we don’t know if they are milling, we think they will be. Other problems the group explained with the policy, “mill owners must provide basic training to the farmers” that grows and process grains at their mill. The policy imposes this as a prerequisite for the miller to gain their licence. The developed, how many millers do you need to train, and the answer was unclear, no real number was suggested but a shortcoming in the actual delivery was expected.

However, the group explained they do have help, companies can sell to farmers or millers, however they must provide free training on their products and have a government licenced to do so. These are usually inputs like chemicals or seeds. One major concern was expressed that the “Government has transferred responsibility for food safety directly to the millers”, again, training is under the miller not the government. The group find this concerning as they need many more trainers to complete their tasks, the additional funding was not approved. One final statement was put forward, “training, if considered as value-adding” needs government support, not just policies.

4. 12. 2. 3 Bankers.

Introducing the question on training, the first response looked at the Land-lease programme, “gets people working on land they have investments in” is a potential win or lose situation for the government. He explained, it’s good for votes but terrible if not supported with the right resources. The question developed to offer some examples, “training is needed, farming is difficult, understanding the soil and getting trained labour is hard”. The question moved towards what government should consider on training, “growing food to eat for yourselves as well as trying to operate a business and sell some of their produce is very difficult even for an educated person.

The government creates and deploys new or updated policies almost every week, this confuses the issue. The questions of the MRF government department were asked, “MRF conducts and lobby the government for funds to training people”, this department is very small in the number of trainers. Government should grow and develop the mandate of MRF to have the capabilities it needs. Finally, the question of transferring training responsibilities was highlighted, “a training approach is not clearly identified”; government transfer this responsibility to others, suggesting no real concern.

4. 12. 2. 4 Summary of Training

The government outlined what it sees as a real concern, and an area for considerable improvement, training was explained as being that vehicle to remedy this problem. What is evident is that there is a process of transferring the training responsibilities towards two separate sectors. The first being a policy mandate that will instruct the MRF to deploy specific training needs for millers to qualify for a milling licence to mill and sell grains. The second is for the miller to be responsible to train those farmers that grow rice that are milled. No training allowance is provided to the miller, this is not explained in the policy. However, the policy has a condition that training rice farmers is a condition to qualify for the milling licence.

The MRF point out their lack of resources to train the huge number of millers across the Ayeyarwady Delta, there are concerns for how the training is provided to the rice farmers, if any. The sentiment of the MRF is that government has a vision but no real plan to deploy many more people to speed up the training needs of the workforce. The bankers point out that government policies are part of a larger goal, however, training departments such as the MRF have to be resourced well to ensure the workforce can adapt quickly and benefit. There are concerns that many policies are created without a firm understanding or reality of what is happening.

4. 12. 3 Investment

4. 12. 3. 1 Government.

Moving the interview on, a question around the agricultural policy on investments was asked, the response was “The government targets investments into grain-producing regions that will benefit the most”. Resources are limited and maximising current infrastructure with investments is the strategy. The question developed to understand who might invest, the response was to look at introducing large FDI in “seed production facilities, rice milling facilities and rice separation and par-boiling systems”. The discussion highlighted to need to introduce value-adding post-harvest, where maximum value can be attained, unfortunately, no evidence of this was presented, such a policy that would clearly state this aim.

There was a mention that rice milling facilities and rice separation systems have been promoted to mediators since 2019, the intention of have a home-grown direct investment which included tax incentives. However, they explained this has not been adopted for several reasons, one such reason was proposed that buyers identify investment opportunities where value creation can be introduced, unfortunately, many regions don’t have 3-phase power or a limited power supply or no electricity at all, here they use petrol generators, which can be expensive to run.

The respondents did however express the five-year investment plan, “Government have identified specific investment zones that they will develop”, consisting of infrastructure road and bridge building, plus constructing a joint railway network from Yangon to Mandalay.

4. 12. 3. 2 MRF.

The sentiment of the MRF group was considered as positive when they explained the governments five-year development plan, however, there were some reservations. Asking the question on reservation, they explained the policy is about investment and improving mediators’ businesses. However, the “Government is upgrading the power supply around the villages in high producing regions” alone. These areas are selected because “international grain buyers are concerned that our current processing facilities do not meet their requirements. Further, MRF explained, “funding mechanisms are initially directed to those millers with access to 3-phase power” and not to others.

This point is clear, but they continued to explain, MRF has limited trainers that speaks other dialects and the printing of training materials for the farmers is just too expensive and is not done. “We are also required to explain the policies and they don’t mention the caveat of where and who will benefit from the five-year plan”, it sounds that everyone will, this is not correct. Investing in a new facility can be more than two million US dollars, and many people refrain from believing what the policies are really offering. A question to understand the five-year plan from the mediator’s perspective, asking the question would millers consider upgrading their facilities that includes tax incentives, the group answered that “millers were not interested in the five-year plan, the investment amounts are too much. Further discussion suggests possibly other reasons as a barrier for millers to upgrade their facilities, the group mentioned “skilled labour shortage, and the younger generation refuse to work in agriculture”.

4. 12. 3. 3 Bankers.

The investment questions were taken as quite positive, “Government import Tax exemptions scheme is in place” to encourage investment into the milling sector. The group explained that there were substantial funds available for the sector expansion. However, it was also expressed that this expansion would not be available across the country. The group explained, “imported machines specific for farming have a Tax freeze for first-time purchases”. This sounds positive but when you consider the costs of these equipment’s, they are already expensive to many buyers.

On the question for millers, the investment policy in new facilities, are there barriers, the response was that “Government have difficulty convincing the mill owners to consider investments into new milling systems. There are a series of funding provisions that the banks' have agreed to participate in” However, they also explained, when “millers submit an application it’s processed by the bank not the government, we require security and guarantors”, the policy is broad and delivers a vision, but the millers are borrowing fund from the bank, not the government.

The group continued to explained that, earlier investment policies that targeted table-top units were advantageous to many millers, they did adopt this policy and engaged with the banks to facilitate these. The group pointed out that “plastic packaging and grain colour separation units requires a 3-phase power supply, which is limited in many villages”, this did cause some irritation to the miller that felt the policy was not benefiting everyone. However, “labelling machines run on a standard current, and many millers purchased these” that assisted them in complying to the food safety regulations.

Other questions that were developed were what other agricultural investment ideas could the bankers provide, the group suggested an “agricultural business should be run by educated individuals” and not the government. “value creation is not just what government decide, it is about what business owners consider doing in the marketplace”.

4. 12. 3. 4 Summary Investment

The government has developed a funding strategy for upgrading rice mills facilities, specific regional locations were chosen because of existing infrastructure which complemented the needs of the upgrading. The government strategy outlines where value-adding could be introduced, yet this investment policy is four years in the making and no data was provided to show how positive or beneficial the policy has been for the mediators. The investment concept was discussed with the MRF group that indicated the policy was of no interest to the millers, reasons given were that “the investment amounts are too much, and younger family members were not interested in milling”. The banking group offered a different perspective, explaining, “imported machines with a Tax freeze are already expensive to many buyers”. Clearly, the idea that all millers can avail of the upgrading facilities investment policy are wrong as the bank requires security and guarantors, “the policy works for a select few and not for everyone”.

4. 12. 4 Education

4. 12. 4. 1 Government.

Discussions on education were conveyed, the government explained that “value-adding across the agricultural spectrum is their aim, but education in this area of thinking must be improved first”. Are there education programmes offered currently? The response suggested “education of people in farming practices are directly related to business and government goals”, training responsibilities are under the mandate of the MRF. The question pivoted towards the land-leasing programme, does the MRF have the responsibility of training these people?

The response offered suggested the “land lease policy allows a family of four or more to lease the land and start their own food growing business”, and “should they wish to engage in the free MoE and MRF programmes they can”. The second response was framed that “school children must attend school and not be found working in the rice

fields". Many of the questions proposed we answered with short statements, there were selected options when the government would provide in-depth details, other than expressing that education is a valuable resource and one which the government intends to continue developing.

4. 12. 4. 2 MRF.

Similar questions were provided to the MRF group, they took the position that "people living in the villages do not have a high education level", here we continue to find difficulties in developing general agricultural practices. Are there other ways to introduce education on a regular basis? The response was "providing education is a difficult problem for us as farmers and mill owners found the regulations complicated and tried to avoid following them, we are only at these locations for a day or two.

Has the food safety law changed the miller's approach to farming, the group pointed out that "the food safe law has improved rice production and the MRF trainers provide information in a practical way. What would be considered to be a barrier for the millers, "many of the participants found the written information very technical for GAP training, the language of the policies is also technical, and this is a real problem. Are there specific requirements which could be highlighted, "buyers are asking for more hygiene controls during the processing stages and many of these are financially prohibitive, adding value across the process depends on the buyer or agents' requirements".

Finally, the group expressed that "we find the competitive advantage concept difficult to explain to farmers or mill owners, and refrain from explaining it".

4. 12. 4. 3 Bankers.

The banking group provided a perspective which could be shown as a neutral position, when asked about the milling business and governments involvement in developing this sector the response was “government looks towards improving society; however, government is not involved with the running of each individual business”. What ideas could be suggested to increase mediators’ profits, the response was “there is a lack of information for the farmers and the banking sector. Government introduces policies, no data is provided which shows how successful these policies were”. Further questions ask, is there a lack of training in the agricultural sector? “we have a lack of educated workers and owners in this sector”. To conclude the final questions asked about available data, the group explained “agriculture is a sector with a higher than acceptable failure rate”, as a sector we are reluctant to support the agricultural sector unless our requirements are met.

4. 12. 4. 4 Summary of Education

Education is considered as a valuable skill to have; the government’s position is to continue to develop this as best they can. However, when discussing the land-leasing programme the suggestions of educating these people was rejected, inasmuch as transferring the responsibility away from government and to either the MoE or MRF, both of which are identified as being under resourced. The MRF have a blanket answer and express the view that “people living in the villages do not have a high education level”, there were only willing to discuss those they engage with at a practical level.

The governments long-term vision explains competitive advantage, unfortunately, the MRF group avoid engaging in explaining this to the miller. The banking group took a neutral position yet criticised the lack of available government data within the agricultural sector. There is an argument that could indicate why the banking sector is reluctant to support the millers.

4. 13 Theoretical Framework - Enablers for Value-add and value-adding processes

Section 2 provides discussions on the relevance of introducing value-adding towards the production environment to achieve a competitive advantage. The researcher has employed various types of qualitative data collection processes identified as interview collection using a semi-structured method to pinpoint and recognise the enabling influences of value-adding within rice value chains and has reviewed multiple academic journals and used a mobile recording device to capture verbal responses to interview questions. Figure 1. 2 illustrates a thematic category process which have been obtained through the use of specific semi-structured interviews questions and the development of the same were used to identify with further depth on how Government (moderators) policy acts and reacts to farmers and miller's (mediators) alike. Figure 1. 1 shows which data collection methods were deployed within the thesis, and the relationship that can be identified between both the research interview questions and the research components.

The findings of this doctoral investigation, as the researcher has already completed a MSc in procurement logistics and supply chain with the dissertation concentrating on rice value chain at the same location, Ayeyarwady Delta. The researcher spent several days observing the component, factors and elements and processes used and deployed by farmers and millers. An inductive process has been employed to investigate the moderator's response through the use of exploratory and descriptive research questions and interviews. Therefore, using the SCOR model framework, table 4. 12 presents linkage to methods used by farmers and miller as mentioned above, these being Plan, Source, Make, Deliver and Return; or as enabling factors within certain stages of a supply chain process, shown, as a theoretical framework for value-adding and value-adding processes at the operation and production phases for whole grain rice.

Table 4. 12
Theoretical SCOR Framework

Theoretical Framework - Enablers for Value-add and Value-adding Processes.					
SCOR Model	Plan	Source	Make	Deliver	Return
	Decision-making. Infrastructure Forecast. Demand from source. Visibility and Control System. Identify Quality Level. Food Safety & Security. Regulation.	Procurement. Buying Power. Transport System. Control of Sources. Audit Process. Record Visibility Checking Information Recorded. Oder / Temperature Controlled. Government Agricultural Policies. B2B. Real-time Technology Traceability.	Production Process Consistency. Staff Education & Development Skills Training. Farmers / Employees / Miller's Integrated. Data-capture. Measurement Operation models. Processes.	Food Safety management. Visibility of Supply Chain. Traceability Records Licence plate. Communication with Supplier / buyer / Customers. Supply Chain Networks.	Customer Feedback / and Service.

4. 14 Chapter Summary

Chapter four initiates a discussion, description and validates the reasoning that justifies the employed data analysis approach. Additionally, a synopsis of the case study groups profile or those contributing to this empirical research thesis was presented. Analysis of the collected interview responses or the qualitative interview datasets collected from the participants who answered the interview questions provided an opportunity to develop unique thematic categories. Finally, those justifiable and relevant to this research were investigated further using 'pattern matching analysis' methods and processes.

The three 'individual' case study groups have a traditional linkage, especially during specific government initiative programmes. Those aligned with supporting the agricultural sector, with numerous added-values, some of which are: general agricultural production training, food-safe health and safety controls for chemical disbursement, product, process and production developments, and financial support. These are often available when specific government financial programmes are announced and are available to qualified rice mill owners.

Table 3. 6 exhibited the individual's extensive knowledge and experience within their own working fields, either as government ministers or government employees or those working within the financial sector. For example, offering their personal opinions of government agricultural policy, from a practical sense or directly engaging with rice mill owners. Each case study group presented their professional outlook, comparing their know-how, from their exclusive position, and across the group as a whole when engaging in agricultural activity. Explained below are several thematic categories and findings that emerged from separate discussions within each research case study group.

Firstly, the governments' overall intention is to develop beneficial agricultural policy and practical programmes that are deployed across the nation via agricultural supply chain activities.

However, this concept of enhancing current value creation activities throughout the rice milling sector presents substantial problems for the government and rice millers as a whole. Many policies are identified as being restrictive or were submitted as barriers for millers to engage in. Other factors discussed suggest government policy changes often causing millers to be cautious about adopting new government ideas within established supply chains. These primarily point towards government policies either adopted by the mill owners or not. The government is not in charge of each business, but decisions are made by the miller's family alone. For example, rice millers understand that value creation involves investment into new milling machinery; who will pay for this investment? Others do not understand why something should be done to create 'potential' value within the supply chain without guaranteeing higher farm gate pricing. This 'misunderstanding' can be due to the vast number of millers completing only a basic general education level by their fourteenth birthday.

Second, the MRF was created to deliver a series of improvements across the supply chain, specifically to the agricultural sector as a whole; these are not limited to certain crops but everything that involves growing on soil or in water. However, rice milling production accounts for the highest concentration of support activities, value creation is identified in two distinct ways across the supply chain. These would add value through training farmworkers and mill owners in general agricultural processes (GAP), the mixing and disbursement of herbicides and fertilizers on crops, and visual checking of chemical contaminants after the rice has been harvested. These processes are associated with food health and safety laws and rice millers consider these processes as an expense, but these health and safety laws are only required if the rice is to be sold for human consumption. Moreover, MRF will deploy trained agricultural staff to farm regions to present value creation ideas; this, however, entails changes to current farming processes, identifying where value-adding can be deployed at either the stages of the operation or specific tasks or with certain requested packaging, prior to shipment to the customer.

Unfortunately, MRF has observed that rice mill owners are reluctant to invest in new processes, pointing out that government policy is selective and often changes without notice. Moreover, policies that point towards value-adding are considered as an expense, suggesting a farm gate price increase would not be accepted downstream of the supply chain, meaning losses for the millers.

Third, the banking sector engages in rice milling support activities through two specific forms: disbursing government short-term farming loans and financing of machinery. Considering the short-term loan process, the banks depend on repeat business on a timely basis, meaning that the loans are provided to the same farming groups, and repayments are achieved, thereby reducing the bank's operations overhead. However, if the loan is recorded as a defaulted loan, the bank must collect, not the government. This problem has escalated in recent years. The bank loan officers now require additional supporting documents before the short-term loan will be released, adding restrictive levels to the loan application.

In addition, many government policy initiatives provide for TAX concessions, linking these policies to machinery investment, here we understand the government linking these to value creation processes. Nevertheless, the bank considers some of these policies limiting as these machines require a 3-phase power supply which is inadequate in many villages. Evidence suggests that the banks' culture has moved away from directly supporting selected governments agricultural policies and often identifies reasons for not progressing forward with rice mill owner applications. These can be seen as counter-productive, considering the government and the banking sector present themselves as working together.

Lastly, all three case study groups present themselves as misaligned; they intend to deliver value chain support and improvements across the supply chain. However, current transient agricultural policies, a lack of understanding for reasons behind value creation, and the banks' strategic drift from supporting numerous miller applications suggest there are limited successes for specific government agricultural policies.

Chapter Five

5. The Discussion

5.1 Introduction

Chapter two provides multiple discussions, explanations and justification supported by literary sources that will assist with linking the aims of chapter six to identify, discuss, examine, and review the results of the empirical research. Moreover, to recognise specific assumptions or conclusions offered or identified in the empirical research data, which can be shown as unique to this thesis. Finally, chapter six's composition and overall structure shall establish what the research findings have derived, using the literature review and producing a list of research questions that formed thematic categories discussed in Chapter four.

5.2 Discussion on Value-adding (VA)

Understanding all aspects of 'value' is the mantra of the twenty-first century (Gentry and Vellenga, 1996; Johnson, Marsh & Tyndall, 1998; Mentzer et al., 2001; Porter, 2008, 2011).

The interview questions were divided into two specific areas: Value-adding (VA) and Value-adding Processes (VAP). Questions were prepared and presented to the interview participants to gain either direct answers to specific questions or more details and further understanding of why something is done a specific way. In addition, the researcher distinguished and differentiated supplementary thematic questions that were chosen to capture a current understanding of Value Creation (VC) activities across an agricultural supply chain. (Power, 2005) argues that supply chain management ought to be observed as a "*strategic element*" within an organisation.

Competitive advantages should be the definitive goal of the firm, created through an inter-dependant and visible network (Harrison, 2015; Bozarth & Handfield, 2016; Ayers & Odegaard, 2017; Soonhong, Zacharia, and Smith, 2019).

Nevertheless, actions need to be conveyed through activities or in the form of processes, deployed at certain stages, and measurable across a supply chain (Rodrigue, Comtois & Slack, 2017). (Porter, 2012) value-adding framework specific to operations identifies the activities and procedures, turning raw materials such as rice seed into finished food products. The first research objective looks at recognising which value-adding activities are deployed in rice milling which are directly associated to value chain theories.

This could include adding labels or branding or packaging several products as a bundle to add value to the rice product. Looking further at identifying processes or stages of value-adding within the rice milling operation process, several areas could be recognised as points to consider for value-adding introduction or a realignment through a form of measurement of current processes. Research objective two, associated interrelationships and value-adding mechanisms that ensured a high standard of care in the dispersant of chemicals, rigours check of other contaminants and removal of unwanted materials. Additional 'value-adding activities' such as separation of whole and broken grains, sizing and finally packaging of the rice into specific weights. These can all be attributed to value-adding theories as discussed in the literature.

In the long run, a system of interdependent activities should be considered, directly identifying added value from a rice milling business and consumer perspective. Organisations need to look inwards to increase "*core competencies*" (Porter, 2011) and reduce waste of any kind. Here, we need to realise what government should consider when creating policies and how these value-adding elements can be introduced, funded and supported through training programmes that deliver a total value stream of events. Examples could be (Porter, 2012) introducing a generally accepted process of value-adding.

Had all participants involved in all three case studies been willing to engage in a group understanding of general academic-driven practical ideas, it might have been identified during the face-to-face interviews. Initially training deployment could have started with first understanding measurable processes and adjusting the process, removing or adding stages to enhance the final output, which was not evident during any discussion or observation.

The researcher recognised a consistent theme of isolation which was present at all three case study group interactions; this can be expressed as a form of group isolation, where case study participants were reluctant to engage with each other on agricultural policy. This evidence which suggests all three case study groups found it difficult to answer the research questions, the idea for 'value-adding activities' were discussed, however, limited understanding or linkage to theory explained in the literature was not evident during the interviews. (Chisita and Abdullahi, 2012) argues that government-led or driven groups should engage with each other "*it has become imperative to promote and sustain collaboration between practitioners and collaborators*" if there will be any successful outcome when deploying policy. An understanding of agricultural or global value-adding theories could have introduced many more proactive responses during the interviews, this was not evident.

(Boroditsky, 2001) explains, the "*languages we speak influence the way we think*". Like Socrates, Plato and Aristotle described, value explained grammatically can have different meanings to different people, (Porter, 1984) argues that value-adding can be understood as "*an action that increases the benefit of a good or service to a customer*".

If we consider the governments' case study group for understanding value within agriculture, we can say they perceive value as an adjective. Pointing out the utility of either whole-grain rice as finished, broken, and poor grade animal feed. It could be argued that the government has many initiatives which are directed towards these approaches. Rice by-products such as the kernel, husk and germ are individual components of rice

that provide employment across multiple sectors such as agricultural food development, improvements to agricultural environment and infrastructure, other economic activities such as employment of millions of workers, weekly wages, monthly salaries and finally, contributions to GDP.

Whereas value depicted as a noun suggests the 'objects' value or worth, rice mill owners are ultimately responsible for the final production of rice, from its primary raw state into a processed stage of dehusking and packaging. These additional processes are completed by the millers are part of the total process, as much as possible nothing is wasted and has some economic value. Unfortunately, there were no specific policies initiatives expressed that pointed out actual value-adding activities that could be adopted. that were initiated by the government and shared to the millers, suggesting value-adding initiatives are not being created.

However, when we look at the value or worth, we tend to understand that the banking sector's case study group would consider market forces and other financially driven factors when processing any value-adding loan application. Examples, when applying to purchase new machinery, supported or not by government tax incentives. In addition, evidence suggests increased reluctance to provide short-term government loans over a six-month period due to a high proportion of defaults. This direction would signify that the case study banking group does not concur with government policy that would promote value-adding processing. Moreover, MRF's case study group findings suggest that the agricultural community perceives value as an added expense that they must accept and shoulder those costs involved. This would indicate that rice millers perceive value as a verb, comparing their rice process to be better or inferior to others. However, if there were attitudes for value-creating activities supported through government value-adding policies and training programmes, it could be argued that the millers might perceive value differently. One example could be millers establish a farm gate price for milling work done, increasing the total output of polished white unbroken rice (Ricestat, 2018) achieves substantial financial benefits for the rice millers.

However, currently the rice millers reject the idea of spending when there are no guarantees of an incremental increase of farm gate prices, suggesting the government policies are defeated before they can gain momentum across the agricultural supply chain.

It can be argued that because of such different grammatical perceptions of value between all three case study groups, there is evidence of disagreements between the participants involved with deploying or supporting government agricultural policies. It might be suggested that having such case study groups in disarray or reluctant to perform as a team could be one reason why the government introduces new policies on a regular basis, looking to find multiple ways of increasing value-adding across the supply chain.

5.3 Summary Discussion on Value-adding (VA)

In summary, this research questions attempts to recognised both external and internal value-adding activities or factors associated with both moderators and mediators. These two specific moderator and mediator groups were unable to deliver value-adding processes and training across various agricultural supply chains, suggesting that both moderators and mediators are in fact in a regressive situation, where initiatives are either rejected or avoided.

The research objectives did identify specific value-adding activities as discussed in the literature review that could be introduced; however, the findings suggest a lack of cohesion between the moderators and mediators. Government policies are created but lack sufficient support from the other two case study groups. Millers are unwilling to engage in generally accepted value-adding processes within the rice milling operations due to a lack of understanding of what this might entail.

Access to quality education provided by the MRF is evident. However, often this education is delivered on-site in local towns or villages. The researcher observed limited practical applications or any interrelationships or mechanisms between agriculture value chains and global value chains theories. Usually, one family member would attend the government-sponsored training programme; it is noted that the vast majority of agricultural workers and rice mill owners have only completed their general education, which finished at the age of fourteen.

A combination of the above can suggest that too much information is provided to the participants, with limited checks and balances on whether any rice mill owners could or has introduced any of the value-adding suggestions explained during the training or those identified in the literature. However, the questions on and around value-adding were not definitively answered and no constructive value-adding processes were identified as being deployed across the agricultural sector.

5.4 Discussion on Value-adding Processes (VAP)

(Groenroos, 2011) argues, *value creation can be characterised as "the customer's creation of value-in-use"*. Consequently, value additions are introduced to enhance the productivity and profitability of a product or service (Porter, 2012). The research objectives look for evidence of government initiatives or whether there are specific business strategies that the moderators and mediators are engaging in. The food safety policies were highlighted as one main government initiative, this was to bring the agricultural sector up to a specific and recognised skillset to meet international standards.

Each case study group was aware of generally acceptable business strategies such as individual or shared supply chains. From upstream to the farmers' inputs such as fertilisers or herbicides or the actual rice seed itself, however there were no actual government initiatives expressed which concentrated directly on value-adding processes across the sector. Myanmar has recorded over eight hundred variants of rice seed due to

farmers culturally exchanging/sharing seeds during market day. Agricultural seeds perform better if planted in certain soil types, and the farmers might not have any detailed information about the grain strain they are exchanging or if this grain would produce a healthier or increased yield if planted into other soil types.

There were proposals concerning the need to stabilise different rice grain strains. However, no suggestions on how this could be achieved were provided by any of the case study groups, indicating there is no current government initiative in place to introduce controllable value-adding processes where the selection of a specific seed strain is identified to eradicate poor quality rice seed strains. The researcher observed that the government case study group did not understand how or where government policy initiatives could introduce certain value-adding concepts, training programmes, or practical 'on the ground support', other than those provided by MRF.

The comment that remained the focal answer for the government case study group was "*value-adding is definitely our overall goal*". However, this is where much of the overall understanding for value-adding remained. To gain an answer to the research question, the researcher asked where the government intended to concentrate its efforts on developing value-adding initiatives, and how would these be deployed. For examples, in stages, per region or to various rice millers of different production capacities across the delta. The response was the continued introduction of "*value-adding is going to take a long time*". The basic premise was that these are groups of people or families selling a product to a buyer.

Looking at this from a perspective of actual benefits for the government, the researcher noted, the government case study group concentrated on multiples and factors of value, not directly concentrating on value-adding initiatives at a process stage or during an overall set of processes as discussed within the literature.

It was not just the agricultural supply chain on its own but what other benefits to society such as the creation of jobs were involved or could be created due to improvements in the

supply chain as one overall unit of activity. (Gereffi and Korzeniewicz, 1990; 1994) argues that governments understand that *"jobs must be created for their economies to grow"*. Suggesting that the government agricultural policy consisted of a potential list of what rice mill owners might consider doing when extending adding value technics or processes to their production system. It was clear that when the government expressed initiatives this meant ideas alone that the mediators could engage in, not necessarily that the government would create or develop new value-adding policy initiatives as first explained, suggesting that government have designed a vision but do not have any active value-adding initiatives in place to support an agricultural business strategy.

Furthermore, millers that offer additional services to the buyer might improve job opportunities across the supply chain network. For example, milling processes are considered the most productive or destructive processes that include removing the husk and the bran; the grains are separated into white and brown rice. Product ingredient information & label production and container branding, assorted packaging, and weight requirements offer additional value-adding opportunities and can create employment. Suggesting that a series of value-adding processes, if added could indicate a strategy thereby increasing overall financial wealth for the millers. Furthermore, (Ruta, 2017) argues that Nations often participate in *"preferential trade agreements"* so as to *"integrate into global value chains"*. Rice retail packaging displays specific certification and verification of quality from rice milling sources. This conforms to local and international food labelling and packaging requirements as discussed in the literature.

The government's intention and ultimate aims are to gain entry into certain global value chains (GVCs) as potential economic benefits that can be substantial to the country. However, (Bosona & Gebresenbet, 2013) point out that supply chain managers consider supply chains as collaborative, suggesting all actors should conform and benefit from deploying agreed standards. The government case study group pointed out, *"we are in a global marketplace; there are many players"* food traceability components such as barcoding are what we are concentrating on.

Again, the research was unable to see any constructive frameworks which the government has deployed or might deploy across the sector. Rice millers should adopt value-adding programme for export opportunities. When asked about how this programme will be deployed to the rice millers or supported with either technology or funding, the response was "*through MRF*". The researcher noted that the response indicated a disconnect of both the government case study and the MRF case study group.

In essence, the government group proposing value-adding improvements at the rice millers' facilities and the MRF case study group were unable to explain or show how policies have introduced or supports value-adding concepts. This could be argued as being due to an absence of direction or financial commitment by the government. The researcher has observed different types of value-adding processes that are reviewed and proposed regularly, but none which are detailed and pointing directly to specific types of value-adding processes that could be deployed across the agricultural sector.

An example of these government policies concentrates on identifying and reducing the majority of labour used during rice processing. (Nguyen-Van-Hung et al., 2018) argues that Governments often engage with scientists and 'export development specialists' to advance postharvest technical activities and processing systems. (Myers et al., 2010) points out that food policies concerns are of global interest, and developing countries are proactively "*interlinking food safety*" goals and initiatives together. It should be mentioned that (FAO, 2013) explains "*improper drying of wet paddy contributes about 3–5% of paddy rice losses*".

These activities should be organised before the actual milling process to reduce losses and achieve a healthy and safe food product. However, the researcher noted that no agricultural policy was acknowledged that promotes the 'drying' of rice at a specific temperature for a precise time, this step alone could be explained to rice farmers, training could be delivered to them by the MRF. However, the lack of such a policy indicates the government is not engaged in value-adding processes.

The vast majority of rice is dried on the open fields or along the road, under the sun until the farmer considered the rice dry. The rice is then shovelled up into rice sacks and sent to the rice miller for processing. This style of drying suffers sun bleaching, and this method of uncontrolled temperature drying (under the sun) cause a considerable percentage of the rice grains to break or splinter (IRRI, 2010), causing direct value loss to the whole grain rice before the milling process. According to the government case study group, the idea of introducing specific academic practical theory to rice miller was subjective, their response being "*education must be improved first*". This approach would indicate a negative and could suggest why the government has not introduced a value-adding framework, value-creation policies that could support an overall competitive strategy as discussed in the literature.

Moreover, methods and ways of harvesting are explained by instructors from MRF; the control of moisture content during the process is seen as a much-needed management activity requiring handheld equipment which is not readily available to the farmers or millers. However, other possible value-added processes are seen as cost-demanding, such as threshing, cleaning, drying before milling, and final storage. Often, rice millers avoid these costs due to the farm gate pricing structures and offer a milling process alone. The farmers will collect the processes grains and use labour to separate the broken rice, colour, and unwanted physical hazards or contaminated materials. (Bentham, 1789) proposed utility is the "*production of benefit*" suggesting utility identifies satisfaction or the needs and wants of a person. However, rice buyers tend not to consider value-adding activities and are unwilling to pay for them if there are any that are proposed.

(Tobias & Morrison, 2019) argues that the perceptions or perceived value are abstract or only an "*opinion of value*". Unfortunately, this perception directly affects the agricultural supply chain, as buyers dictate if scientists are worth listening to and if government policy is worth engaging in. The research objectives look to identify a framework that the government might be using to encourage value-adding processes, however, this was not evident.

This process between the rice millers and buyers identifies a disconnect between government policy and the rice millers themselves. What are the incentives to introduce value-adding? Moreover, the banking case study group explained what value-adding meant to them as an organisation and how they deliver this knowledge to their rice mill clients. However, there are difficulties with unstructured government policies that are introduced without planning, or those which do not have a framework that is understood by all stakeholders.

Not all mill owners are located in a region with access to 3-phase power, constructed roads linking to the main road network or a large plot of land to avail of the possible benefits of engaging in specific government policy initiatives. Rice mill owners are family-run businesses or sole proprietors with limited knowledge in such methods of value-adding. The research objectives looked at what government initiatives there are to introduce value-adding to the millers, none were provided, except as being needed and part of the overall vision.

It should be explained that many are local retailers at the farm gate and do not engage in provincial sales meaning everything is localised. The introduction of the food safety laws encouraged some rice mill owners to venture into support activities as they are called, meaning labelling and brand packaging after milling. However, not all millers did this as their customer base buy rice directly from large plastic bins where the rice is weighed and sold to the customer at the point of sale. The researcher noted that the banking case study group had many adverse reactions to government value-adding policies.

Past experiences suggested confusion between the government initiative and those responsible for deploying it, suggesting there was no framework developed. The banking group explained, "*we are a financial concern*" with no ties to the government. We are not an arm of any government initiative unless it is related to a financial instrument. The researcher noted that during the last government term, export quality of rice continues to fall for whole-grain yields; these have been declining year on year, as records indicate since 2015.

In contrast, 'broken' rice production and its export to other countries under the G2G model continues to increase. This suggests that actual product value is lost across the agricultural supply chain, proposing questions, first, why is broken rice production continuing to increase' when direct value is lost at post-harvesting due to sun drying? None of the three case study groups were able to explain why this was the case.

Second, is there confirmation showing which government policies for value-adding are working, and are the case study group supporting them? The only response to this question came from the MRF group, expressing that the collection of data is not done as this would or could be time consuming and expensive. Again, indicating that there is no actual government framework that is directly pointing towards the introduction of value-adding processes or programmes across the sector.

Finally, why is there limited evidence to confirm if rice mill owners have introduced successful value-adding processes into their operation? The Government, MRF and the Baking case study groups do not have sufficient data to answer these questions. Highlighting a disconnect between these three groups who present an ethos to engage rice mill owners in value-adding processes but have yet to accomplish a shared strategic vision themselves?

5.5 Summary Discussion on Value-adding Processes (VAP)

In summary, an evaluation of the thematic categories on value-adding processes (VAP) has been discussed; three case study groups are brought together to deliver and support government policy. Moreover, there are disconnected processes within the three groups. The ultimate direction of government policies is to introduce value-adding processes, ideas and scope within a rice millers' operation. This is evident in all the discussions that policies have been introduced. However, the government case study group announce ideas of what they wish to happen and instructed the MRF case study group to deploy mechanisms and projects for change and development across the agricultural supply chain with minimal resource commitment or guidance. The lack of a sector strategy or framework could be seen as a problem. Counter to these policies is the banking case study group that foresee multiple difficulties due to the location of rice millers in infrastructurally underdeveloped locations. Often these operators are not near substantive electrical or other transportation developments, suggesting these do not have access to consumers that might be willing to pay more for rice that has or can show added value in their perspective.

Chapter Six

5.4 Conclusions

5.5 Introduction

Chapter six introduces and discusses the conclusion to this empirical research thesis, which underscores the researchers aim, and the research objectives by means of re-examining the research questions and reviewing linkage provided in the literature review. Lastly, specific elements and factors are identified and discussed as contributing to knowledge and additional discussions on the limitations and recommendations for further research within the rice milling domain.

5.7 Achieving the Research Aim and Objectives

In this section, the researcher reveals the process of how the aim and objectives of this empirical research are accomplished. This empirical research aimed to investigate and explore “value-adding” and “value-adding processes” utilised in agricultural rice supply chains by rice milling owners. This research thesis was accomplished by focusing on the research objectives using the following approach.

The first objective was to review the relevant supply chain literature to explore and identify known characteristics of supply chain management. Understand the origins of value, how different actors within a supply chain may well define value, how value-adding processes can create value within a supply chain. What known areas are specific sources of value, value-adding activities, and considered measurable value-adding processes. Which can be deployed within and across supply chains (SCs), agricultural supply chains (ASCs) and Global Value Chains (GVCs), increasing overall performance within the research area of the Ayeyarwady Delta, Myanmar.

The second objective of this empirical research thesis was to introduce, describe and illustrate the SCOR model conceptual framework. That includes multiple value-adding and value-added processing elements within a rice milling operation that is part of a standalone supply chain or directly linked to a larger Global Value Chain. The literature was critically reviewed and evaluated against current processes deployed across agricultural supply chains to accomplish this objective. Here there is a gap as there is a widespread misunderstanding for value and value-adding process, suggesting that value is less critical; therefore, it provides no value when introduced to a process. Therefore, this researcher performed a methodical literature review that identified absent factors and elements of value-adding and value-adding processes that are well-known within a broader supply chain perspective as discussed within the literature.

The third objective of this empirical research was to investigate if there are identifiable reasons or linkages to specific government-driven agricultural policies that support engagement in value-adding mechanisms or processes. How are these utilised or deployed across a rice milling operation? The initial stages were to understand how agricultural policies are created, what are the driving factors that government look for and the methods of deploying these policies across the agricultural rice landscape.

This stage of the researcher's investigation was achieved by reading government agricultural policy specifically created to introduce 'value-adding concepts and processes' during the rice milling process. Other reports, when made available, provided information on what specific value-adding methods were the primary goal of government at a particular time of year. Relevant peer-reviewed academic journals, industry white papers, and external reports written by NGOs that concentrated on the agricultural sector were consulted.

Several current value-adding and value-processing supply chain frameworks were critically assessed using primary data collected from semi-structured interviews of three selected case study groups. Concurrently, secondary datasets of information such as operation documentation and records were obtained during observational meetings.

However, due to the sensitivity of some records and government processes, there were many archival records shown but not provided to the researcher. Nevertheless, this complete collection of primary and secondary data permitted the researcher to employ a triangulation method approach of all data sources and other information that offer insight into rice milling operations.

The fourth objective of this empirical research was to visualise several value-adding methods currently employed within internationally recognised agricultural supply chains and directly associate these to the Myanmar agricultural government policy. Next, to identify any direct links to value-adding and value-adding processes that are presently used within any rice milling operations located at Ayeyarwady Delta. To ensure credible information was collected, thereby supporting the research thesis, certain individuals were contacted from three specific groups: government ministers, government employees, and the banking sector. All were requested to engage in face-to-face interviews with the researcher at the case study's agreed location to gather primary data and observe and understand how all three groups work together in delivering and supporting government agricultural policies and investment initiatives. Multiple sources of data were gathered and critically reviewed and analysed, suggesting as being distinctive to agricultural supply chains, while others provided a complete process as explained within the literature.

5.8 Answering the Research Questions

A total of fourteen participants were invited to participate in this empirical research; this amounted to three individual case study groups who presented several independent opinions and definitions for value-adding and value-adding processes. Certain opinions were in line with those introduced from the government perspective for deploying agricultural policy; other opinions were offered from actual working experience or a knowledgeable perspective on an understanding of value. Following a critical review and analysis of the case study groups responses, a substantial set of convergent replies suggested a moving toward uniformity or need to engage in value creation activities and value-adding processes across agricultural supply chains.

Several essential components or elements were discovered in this empirical research, such as:

- Rice agricultural supply chains are defined as the safe production and recorded transportation of milled grains from the farm to the consumer. A number of pre-production activities directed at value-adding are essential to improve rice grains total value across a supply chain network.
- Terminologies used that express or identified value can be misunderstood by all actors involved across a supply chain network, reducing total value.
- Value as a construct can present both positive and negative involvement, significantly where costs, expenditures and pricing are associated.
- Value-adding and value-adding processes require explanation, documentation, and implementation of methods and measurement. To show and record value-chain processes, thereby adding to the total value of a supply chain.
- Operation stages for rice milling should indicate where value-adding elements and improvements can be added or removed, thereby enhancing value creation and competitive advantage.

- Government initiatives may include education policy on supply chains, value-adding, and general business operations to enhance overall agricultural supply chain value performance and increase competitive advantage networks.
- Rice supplier/buying behaviour for milled rice should encourage value-adding factors across the supply chain to promote value creation and competition.
- Government policies that are directed towards value-adding or value-adding processes should collect information and measure actual total output improvements across the supply chain network to ensure the agricultural policy is effective or not when developing a competitive advantage.
- Recorded financial incentives or tax initiatives should be concentrated in regions that have access to 3-phase power and well-developed transportation infrastructure that can offer added value across a supply chain network.
- Foreign Direct Investments should be permitted to invest into rice milling operations, an introduction of modern milling machinery, training and skills development that can introduce value-adding and value-adding processes.
- Case study participants indicated that the introduction of the food safety laws had improved rice value and food safety across the agricultural network. However, the reliance on information supplied by the rice millers is not audited, and this remains a concern. This can indicate a loss of competitive advantage if there are no effective audits or records of data.
- Employee training on value-adding factors is highlighted as a concern; rice millers are concerned about the real or actual value of value-adding elements, as these are not compensated for at the farm gate.
- Cultural norms for the sharing and exchanging rice seed can be shown as opposing competitive advantage from the government's position. This eliminated the development of a common rice strain that can achieve agricultural scalability, thereby developing a competitive advantage for G2G and B2B and B2C local and exports orders.

It should be stated that some enabling factors for value-adding and value-adding processes are recognised across separate parts of the agricultural supply chain. Several elements are identified as being unique to the Ayeyarwady Delta in Myanmar. The research question similarly investigates as to what degree or scope and how do these influences or enablers and inhibitors for value-adding and value-adding processes exist within agricultural supply chains in reality?

The overall findings of this empirical research suggest that the Myanmar government is engaged in the development of the agricultural sector. Through the deployment of agricultural policies, the preferment of farming machinery incentives and selective investment initiatives across the agricultural landscape is part of the overall supply chain network growth strategy. With a population of fifty-five million people, seventy percent of them working within the agricultural sector, the government is mindful of the need to develop a robust agricultural rice supply chain system to feed their population and to export a considerable amount of the whole grain or broken rice production to increase GDP.

Rice is in a global competitive marketplace; the government deploys various policies that can increase the livelihoods of their people. However, with the vast majority of the populous having completed a general education level, there are considerable drawbacks for introducing value-adding or value-adding processes and how much change can be achieved quickly. The view of several of the case study groups participants were the government should realign many of the agricultural policies towards more prominent rice millers alone. However, the counter-view of this statement points towards improvements in training and delivery at source by MRF, with follow-up visits to the rice millers. Ensuring that knowledge shared resulted in actual value-adding activities being deployed and recorded benefits shared with other rice millers.

The literature review and the findings of this empirical research imply that value-adding and value-adding processes remain a modern-day foreign hypothesis to the local rice millers. The government and other stakeholders should consider engaging in practical on-site educational activities that the rice millers themselves drive. There is clear evidence that numerous government agricultural policies are poorly created and abandoned prior to implementation, as the agricultural population rejects engaging in these activities as value is misunderstood.

This problem and understanding of the term value from different perspectives should be address. The idea of developing a competitive advantage requires all actors to be educated in the ideas of value creation and value-adding processes, trained in methods of operations policy and measurement of processes. These fundamental factors are necessary when developing and deploying value across an agricultural supply chain network.

5. 9 **Originality and Contribution to Knowledge**

The researcher affirms, to the best of his knowledge, that this empirical research thesis and the supporting literature review concentrates on value, value-adding & value-adding processes and activities within an agricultural supply chain and supply chain network. The researcher believes that as of the completion date of this doctoral thesis, there is a limited number of empirical research on value-adding food supply chains that concentrates specifically within the Ayeyarwady Delta of Myanmar.

Therefore, this empirical research thesis has the potential of contributing to the existing body of ‘supply chain knowledge’ by establishing a theoretical framework, which can be implemented, inspected, examined, measured and document at a rice milling facility. This empirical research extends preceding studies, which were principally directed towards understanding value, agricultural value-adding inputs and factors, value-adding supply chain processes, value-adding within fresh food supply chains and finally, value creation within global value chains.

All of which offers further insight and practical understanding for British academics. Moreover, the findings of this empirical research study can be viewed comprehensively across a broader global perspective. Predominately in developing countries that may have difficulties gaining access to knowledge that concentrates on value creation and value-adding in agricultural food supply chains. Furthermore, this contribution to the body of knowledge has pinpointed unique enablers of value-adding and value-adding processes, such as this introduction of rice milling best practices that can be beneficial across a supply chain network, offering the ability to develop a competitive advantage.

Table 2. 7 a set of stages of a rice milling operation process, unique enabling factors are identified, linkage to government policy and value-adding processes are evident. A broad list of academic literature and their sources are highlighted in this empirical research thesis on supply chain and is placed in the appendixes.

Table 2. 7 (Found on page 94)

Suggested Value Identified Using 4 Components

Publications / Definitions / Value / Value- adding / Value in use / Competitive Advantage / Operations Systems & Procedures'	Moderators Government	Value Grammar	Inductive Approach	Academic Linkage	Deductive Approach	Value Grammar	Mediators Businesses	Cited in the Literature
Rice Milling	Technology / Decision-making Systems / Operation models / Traceability / Integrated Data-capture	N & A	Economic	Porters Value Chain (PVC)	Economic	N	Energy Infrastructure / R&D / Economic Investment & Development	
	Business Acumen	N & A	Economic	Porter's Five Forces - Power Suppliers	Economic	N	Entities engages in legal agricultural activity	
	Farmers / Employees Customers / B2B / B2C Government	N & A	Impacting Leadership Decision Making	Stakeholders	Economic	N	General population	(Porter, 2012)
	Skills / Training & Development	N & A	Decision Making	Value-adding Processes / System	Impacting Leadership Decision Making	N & A	Education / Skills Development	(Van Dusen & Nissen, 2019)
	Investment R&D New Market Buyer Power B2B	N & A	Decision Making	Competitive Advantage: Cost / Differentiation	Impacting Leadership Decision Making	N	Investments in new Milling facilities Development of Seed System Water Management	(Ausserhofer, Gutounig, Oppermann, Matiassek & Goldgruber, 2017)
	Government Agricultural Policies	N & V	Economic	PESTLE	Impacting Leadership Decision Making	N & A	Political Will Economic Growth / Exports / FDI Social Improvements / Poverty Reduction Technology Agri / Skills Development Environmental Food Strategy 2050 Legal frameworks	(Buxton, 2005)
	New Markets Exchange Rate Poor Infrastructure	N & A	Economic	SWOT	Impacting Leadership Decision Making	N	Infrastructure Development TAX Incentives Financial Loans	(Method, Kosso & Netherlands, 2020)
	Inconsistent Agricultural Policies	N	Decision Making	Government 'General Agricultural Policy' GAP	Impacting Leadership Decision Making	N & A	Economic Development	(Brown, 2020)
Cleaning and grading	Value-adding methods / systems	N & A	Decision Making	Value-adding Processes / System		N & A	Government provided materials on Value-adding Processes	(Zyphur & Pierides, 2019)
Parboiling		N & A	Economic	Porters Value Chain (PVC)	Economic	N		(Mesly, 2020)
	Value-adding methods / systems	N & A	Economic	Value-adding Processes / System Processed rice-based products	Economic	N		(Glesne, 2011)
		N & A	Decision Making	Ready to Cook / Eat meals Healthy Options	Economic	N	Business Development Loan	(Porter, 1985)
Packaging		N & A	Economic	Porters Value Chain (PVC)	Economic	N	Energy Infrastructure / R&D / Economic Investment & Development	
	Customer Focused	N & A	Economic	Porter's Five Forces - Power Buyers	Economic	N	Products comply with legal requirements	
	Value-Creation Exports New local markets International development Imports / Technology Business Expansion	N & A	Decision Making	Value-adding Processes	Economic	N	Business Development Loan Job Creation Poverty reduction FDI / Local Investment Programmes TAX Incentives Increased Imports / Exports Agri Technology Development	(Diakantoni, Escalith, Roberts & Verbeet, 2017)
	Influences	N & A	Impacting Leadership Decision Making	Competitive Advantage	Impacting Leadership Decision Making	N & A	Consumer Buying Behaviour (CBB)	(Gereffi, 2019)
	Legend Noun Adjective Verb	N A V						(Grönroos, 2011)
								(Higgins & Scholer, 2009)
								(Lee & Gereffi, 2015)
								(Memedovic & Shepherd, 2009)

5. 10 Contributions to Theory and Practice

The thesis will first concentrate on contributing to current theoretical knowledge of value-adding (VA) and Value Chain Analysis (VCA) that focuses on developing a competitive advantage within food supply chains in Myanmar. This research centres on developing a framework that shows at which stages appropriate enablers or deterrents may be employed within the rice milling production process. The literature review explains value's methods and concepts, pointing out where within a process value is created or lost. Porter (1985) suggests improvements in efficiency within the production systems can enhance profits. (Kashav, Singh & Shabani, 2016) point out that "*identifying the importance of adding value*" at specific stages of a process can be driven by a best-practice process.

The importance and relevance of (VA) have been investigated extensively, (Krishnapriya and Baral, 2014) conclude that "*firms need to integrate their key business processes*" and identify where (VA) can be deployed within a process. As early as March 2021, minimal research looks at Myanmar's moderators and mediators on rice value chains. Under increased global competition, local food supply chains, moderators, and mediators' practices can be misaligned when understanding value-adding within multiple processes. There can be various factors that both moderators and mediators should consider but might not be aware of. Therefore, a variety of theoretical frameworks on value-adding (VA) and Value Chain Analysis (VCA) will be critically examined; to identify what processes should be measured and why. Moreover, to understand if adding stages too or removing stages from a process actually adds value to the milling of rice?

The second proposed contributions that will be addressed are the practical elements that make up the research questions for the qualitative interviews. The empirical research will be deployed as follows; the qualitative interview questions will be presented to a select group of Government ministers (moderators) who have or are responsible for agricultural policy in Myanmar.

The questions that will be proposed aim to figure out how both moderators and mediators understand value-adding (VA) and the methodology of Value Chain Analysis (VCA); and why it is essential within the production of whole grain rice. As explained within the literature review, both independent groups have self-serving agendas for the moderators' value-adding points towards GDP. In contrast, for the mediators, it points directly to profits within the business. Therefore, from an academic perspective, the interview questions' responses should illustrate and explain the governments' understanding of value-adding. In principle, this research may offer a bridge between both moderators and mediators to accomplish a more productive ways of securing Myanmar's rice value chain.

Historically, crop yields in Myanmar are significantly lower than in other neighbouring countries due to apparent deficiencies in the supply of high-quality agricultural inputs; such as seeds and fertilisers, other negative factors are the lack of modern agricultural equipment combined with high production costs. The Agri-inputs industry is still predominantly government-controlled and regulated; restrictions still exist which prevent multinationals from operating directly in the country unless they have formed a partnership with local distribution companies, who are licenced for such activities (Herridge et al., 2019). Evidence suggests that current agricultural production growth will remain constrained due to 'poor' seed quality; lack of access and affordability of technology and machinery.

Low rice yields per hectare, complicated land and banking regulation, an untrained or low-skilled workforce, a lack of a developed supply chain infrastructure or identified links to Global Value Chains have been observed. Many smallholder farmers face the problem of inadequate dry and secure storage facilities for their 'semi-finished' harvested crops. This forces farmers to sell at sub-optimal prices to intermediaries, given that the farmers cannot hold onto their crops to achieve a better price when market forces allow. For perishable goods, this problem is made worse by the lack of cold secure chain storage facilities and the unreliable electricity supply within the province (Dumaresq et al., 2020).

Due to sparse transportation networks and underdeveloped value chain coordination within specific processes, farmers face constraints in getting their products to market, whether goods are destined for domestic or international consumers. The Government is eager to attract foreign direct investment (FDI) into the agricultural sector and explains publicly and at specific agriculture events the need for 'value-adding' methods to be adopted within multiple food sectors, rather than exporting 'raw' produce alone to other countries. However, the Government as of 2020 only permits joint ventures with a local partner to trade in seed, pesticide and fertiliser activities alone.

Combined with inadequate government policy, weak financial returns for business owners and uncertainty with access to new markets both mediators and general farmers are reluctant to invest into expensive causes such as value-adding processes or new production or operational methods. (Porter, 1985) explains, supply chains are created to "*maximise customer value*", as well as eliminating "*non-value-adding activities*"; achieved through identifying building blocks for competitive advantage. Which can consist of multiple factors and activities such as processes or systems that have added or removed stages or steps within a procedure to improve efficiency and reduce costs, thereby creating a competitive advantage? (Munasinghe et al., 2019) argue, this process can be achieved through three specific stages.

Construction of a value chain is required showing the activities, analysis of these is performed to confirm which one is adding or not adding value. Finally, synthesis or reconstruction (Porter & Kramer, 2018) of the initial value chain is created. (Porter, 1980) explains a generic strategy consisting of (Cost leadership, Differentiation, or Focus) that can be applied to selective areas of a business; such as the production stage of a rice agricultural food value chain. However, the model states that "*a company must only choose one of the three, or risk wasting precious resources.*" Looking at the business element and concentrating on the first two strategies (Cost leadership and differentiation) and employing the 'other' selected frameworks.

This research aim is to identify 'value-adding' and 'non-value-adding methods' and principles and techniques that are identified and used within 'successful' Global 'Food' Value Chains (GVCs) and Agriculture Supply Chain Networks (ASCN), explicitly rice supply chains. Current literature explains how the term 'value' can be understood as a building-block mechanism, once deployed strategically throughout the organisation potentially leading to increased profits and reduced waste. Global supply chain management is tasked with achieving these demands. However, GVCs are not operating within Myanmar's agricultural sector, yet, in a country which has a population of 55 million people, of which 70% or 40 million people work within the agricultural sector alone, leaving the researcher to ask the question why not, why do we not find active GVCs? The literature presents evidence from historical events of how Global Commodity Chain (GCC) and Global Value Chain (GVC) that have evolved over the last two hundred years. Nevertheless, some gaps do not explain why Myanmar is not interwoven within what we should find as a (GCC).

The sheer size of agricultural land and its abundant workforce alone should be driving and enabling such growth within the agri-food sector; this is not the case. Therefore, the SCOR - model research framework will be tested, to explain and compare the 'interrelationship' of value-adding elements and activities during the 'rice' production process stage. As it is described and understood within the literature; how these value-adding or value-in-use activities, are revealed to the consumer. Thereby 'creating value' for the product in the mind of the consumers. The ultimate goal of value-adding is to gain higher margins or profits within food value chains (FVCs). The researcher intended to understand the links and value-adding activities practices and employed by rice mills owners/operators to determine how business understand the term value. The last strategy (Cost focus) from the Governments' moderators' perspective, could be a 'long-game' strategy, or one that might be useful should they [Government] decide to concentrate solely on an Export-Led Growth strategy.

5.11 Practical contributions through Interviews

The term 'value-adding' or value creation are not understood very well in the Myanmar agricultural sector; both are interpreted as 'giving something away or as unpaid labour' or just to please the buyer. Unlike more successful countries such as Cambodia or Thailand, that are actively engaged in GVCs or are part of a well-developed supply chain. This research intended to measure how 'value and value-adding processes' are expressed or introduced or present within the rice production and operations stages. Identifying, analysing and comparing these activities against known GVC literature and successful leader orderers; identifying gaps between current literature and prevailing practices in Myanmar and selected 'successful' countries within the rice production sector.

Through case study participation there was an effort to understand the potential of pointing out areas where 'value-adding' is not found or can be introduced to the rice production and processing systems as a whole. Where deficiencies in value-adding activities are unknown or misunderstood, these can be identified and analysed against current literature. The Government identified as a 'moderator' and policy decision-makers endeavour to create favourable economic policies. The objectives of face-to-face or qualitative interviews are to understand the philosophies which the Government are taken on agricultural matters, to explain the evidence or guidance they necessitate when developing and concluding on such policies.

The researcher interviewed approximately ten (10) Government officials who are responsible for agricultural policy, two (2) senior directors from the banking sector and two (2) regional bank managers involved with deploying or supporting agricultural 'government' programmes and initiatives within the Ayeyarwady delta.

The proposed semi-structured interview questions originated from known and relevant GVC literature, value-adding methods, processes, technologies and value-streams within

Agriculture Supply Chains Networks (ASCN). The responses have the possibility of identifying gaps in Government philosophies and actual current policies and perspective within GVCs and Rice Value Chain (RVC) in specific areas of the supply chains of the Ayeyarwady delta. The overall intention was to 'find out' what is known by the knowers.

5.13 Research Limitations

It can be stated that when engaging in any research process, there can be known limitations that are pre-established. However, during the research process, new or unknown restrictions can appear as being difficult, problematic or near impossible to avoid. Consequently, the researcher has observed the advice provided by prominent authors and followed a 'best practices research method approach'. To prevent or minimise unknown difficulties, which may have arisen, so as to overcome any limitations. However, as mentioned earlier within this thesis, there were difficulties outside the control of researcher of this doctoral thesis empirical study; these might have affected the final quality of the research.

The identifiable limitations of this empirical research are:

- It was apparent that individuals from each case study group were cautious when answering or suggesting that government policy might be poorly created or that multiple agricultural policies fail often.
- All three case study groups were able to detail events when government agricultural policies were considered a success around the Ayeyarwady Delta. However, there were insufficient data that demonstrated these successes.

5. 14 Recommendation for Further Research

Over the last several years, global value chains and their supply chain sub-structures in different countries have been reshaping due to political and economic markets. Each country is attempting to develop a competitive advantage of its own. Numerous pressures are placed on governments to design and develop policies that can benefit society in the form of jobs, a better way of living, and additional income to the government or GDP.

This research thesis has presented various interesting ideas that point towards rice as a product that is grown. Concentrating on introducing value-adding activities during the milling process that can establish benefits to the millers directly. In the form of improved throughput with enhanced whole-grain rice, unbroken, as the final output. Hypothetically developing a competitive advantage element for future total rice exports that society and the Myanmar government can avail of.

The researcher would suggest potential and noteworthy areas of future research.

1. A future research area could be to conduct a quantitative research approach to investigate how the rice millers themselves might deploy value-adding activities. For example, asking direct questions such as whether government agricultural policies or incentives offer any benefits to the millers?
2. As education can be shown as the backbone of Myanmar, which is classed as a developing country, researching the connection to education and government policy from the perspective of the rice buyers. Evidence suggests that these buying groups influence the rice millers directly, which can be observed as an adverse driver of government value-adding policies. Here, a qualitative face-to-face interview of the leading rice buyers can indicate where value creation or value-adding, value-adding processes and standards could be appreciated and deployed in the Ayeyarwady Delta.

Finally, figure 5. 14 shows a proposed Theoretical SCOR Framework that includes all components into one graph, highlighting the individual relationships of each factor. This can be a starting point to view other potential noteworthy areas of future research, such as how the introduction of FDI into the rice milling sector can be shown as a potential springboard for an increased competitive advantage, as was done in Cambodia 2010.

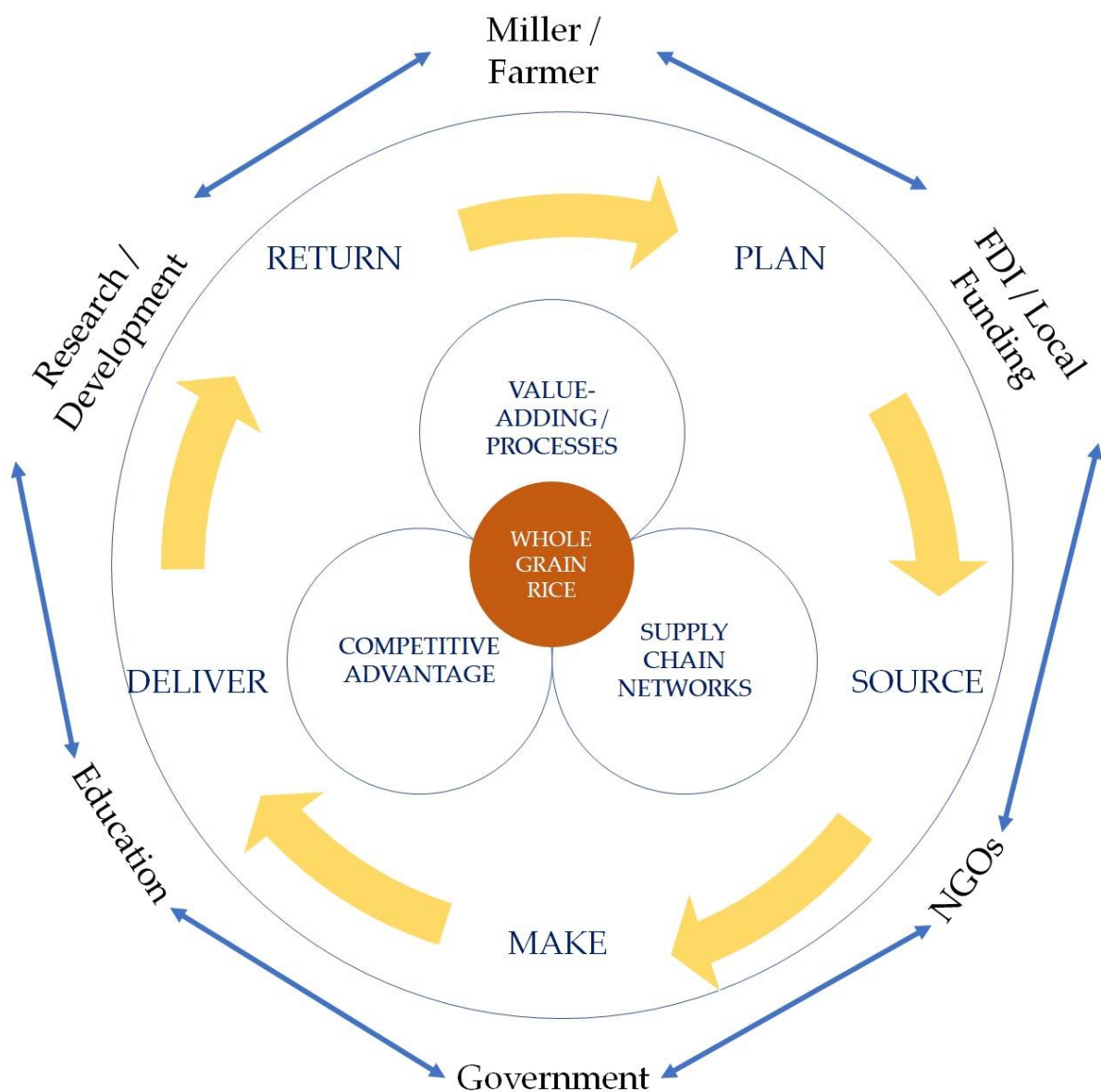


Fig 5.14 Theoretical SCOR – Model Framework

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Appendixes

Supply Chain Management Primary Literature Review & Definition

Author	Data	Page Number	Supply Chain Management Definition
(Forrester, 1958, p. 37)	1958	154 322	used keywords and headings in his paper, “ <i>supply pipeline</i> ”, “ <i>supply line</i> ” “ <i>commodity supply systems</i> ” and “ <i>distribution systems</i> ”
Jones and Riley (1985, p. 16)	1985	16	“...deal[s] with the planning and control of total materials flow from suppliers through end-users.”
Stevens (1989, p. 3)	1989	3	“The objective of managing the supply chain is to synchronize the requirements of the customer with the flow of materials from suppliers in order to affect a balance between what are often seen as conflicting goals of high customer service, low inventory management, and low unit cost.”
Ellram (1991, p. 13)	1991	13	“A network of firms interacting to deliver product or service to the end customer, linking flows from raw material supply to final delivery.”
Christopher (1992)	1992		the management of or the network of organisations that are involved, through upstream and downstream linkages, in the different processes and activities that produce value in the form of products and services in the hands of the ultimate consumer. Thus, for example, a shirt manufacturer is a part of a supply chain that extends upstream through the weavers of fabrics to the manufacturers of fibres, and downstream through distributors and retailers to the final consumer.’
Berry, Towill and Wadsley (1994, p. 20)	1994	20	“Supply chain management aims at building trust, exchanging information on market needs, developing new products, and reducing the supplier base to a particular OEM [original equipment manufacturer] so as to release management resources for developing meaningful, long term relationship.”

La Londe and Masters (1994, p. 38)	1994	38	SCM entails "...two or more firms in a supply chain entering into a long term agreement; ... the development of trust and commitment to the relationship; ... the integration of logistics activities involving the sharing of demand and sales data; ... the potential for a shift in the locus of control of the logistics process".
Harland (1996, p. 64)	1996	64	"...management of a network of interconnected businesses involved in the ultimate provision of product and service packages required by end customers."
(Aitken, 1998)	1998		A network of connected and interdependent organisations mutually and co-operatively working together to control, manage and improve the flow of materials and information from suppliers to end-users.
Monczka, Trent and Handfield (1998, as cited in Mentzer et al., 2001, p. 6)	1998	6	SCM requires traditionally separate material functions to report to an executive who is responsible for coordinating the entire materials process. It also requires joint relationships with suppliers across multiple tiers. SCM is a concept, "whose primary objective is to integrate and manage the sourcing, flow, and control of materials using a total systems perspective across multiple functions and multiple tiers of suppliers".
(Rayport & Sviokla, 1994)	1998		The Internet has in many ways transformed the ways in which supply chain members can connect with each other. It provides a perfect vehicle for the establishment of the virtual supply chain.
(Chandrashekar & Schary, 1999)	1999		Not only does it enable vast global markets to be accessed at minimal cost and allow customers to shorten dramatically search time and reduce transaction costs, but it also enables different organizations in a supply chain to share information with each other in a highly cost-effective way.

(Handfield & Nichols, 1999)	1999		SCM is the integration and management of supply chain organizations and activities through cooperative organizational relationships, effective business processes, and high levels of information sharing to create high-performing value systems that provide member organizations sustainable competitive advantage.
(Croxtton et al., 2001)	2001		The integration of key business processes from end-user through original suppliers, that provides products, services, and information that add value for customers and other stakeholders
Mentzer et al. (2001, p. 18)	2001	18	"...the systematic, strategic coordination of the traditional business functions and the tactics across these business functions within a particular company and across businesses within the supply chain, for the purposes of improving the long-term performance of the individual companies and the supply chain as a whole."
(Mentzer et al., 2001, p. 18)	2001	18	The systemic, strategic coordination of the traditional business functions and the tactics across these business functions within a particular company and across businesses within the supply chain, for the purposes of improving the long-term performance of the individual companies and the supply chain as a whole
Ho et al. (2002)	2002	4422	"A philosophy of management that involves the management and integration of a set of selected key business process from end user through original suppliers, that provides products, services, and information that add value for customers and other stakeholders through the collaborative efforts of supply chain members.
(CSCMP, 2003)	2003		"that part of supply chain management that plans, implements and controls the efficient, effective forward and reverse flow and storage of goods, services, and related information between the point of origin and the point of consumption in order to meet customers' requirements"
Chen and Paulraj (2004, p 119)	2004	119	In a similar way, defined supply chains as a "network of materials, information, and services processing links with the characteristics of supply, transportation, and demand"

Christopher (2005, p. 17)	2005	17	"...network of organizations that are involved, through upstream and downstream linkages, in the different processes and activities that produce value in the form of products and services in the hands of the ultimate consumer."
Christopher (2005, p. 5)	2005	5	maintained that SCM entails "management of upstream and downstream relationships with suppliers and customers to deliver superior customer value at less cost to the supply chain as a whole" (p. 5).
(Chan and Lee, 2005, p. 31)	2005	31	The efficient management of the end-to-end process of designing, planning and forecasting, sourcing through complex supplier networks, manufacturing, and distributing products from raw material to the end customer, and the final disposal of the product by the customer
(Institute of Supply Management, 2005)	2005		The design and management of seamless, value-added processes across organizational boundaries to meet the real needs of the end customer
(Ogrinja, 2013)	2013		Supply chain management is the integration of key business processes (Customer relationship management, supplier relationship management, customer service management, demand management, order fulfilment, manufacturing flow management, product development and commercialization, returns management)
(Slack, Brandon-Jones & Johnston, 2013)	2013	406	Supply chain management is the management of the interconnection of organizations that relate to each other through upstream and downstream linkages between the processes that produce value to the ultimate consumer in the form of products and services. It is a holistic approach to managing across company boundaries.
(Harrison, 2015)	2015		SCM involves planning and controlling all the processes from raw material production to purchase by the end-user to recycling of the used cans.

(Kozlenkova, Hult, Lund, Mena & Kekec, 2015)	2015		Supply-chain management is a cross-functional approach that includes managing the movement of raw materials into an organization, certain aspects of the internal processing of materials into finished goods, and the movement of finished goods out of the organization and toward the end consumer.
(Bozarth & Handfield, 2016)	2016		The active management of supply chain activities and relationships in order to maximize customer value and achieve a sustainable competitive advantage. It represents a conscious effort by a firm or group of firms to develop and run supply chains in the most effective and efficient ways possible.
(Chopra & Meindl, 2016, pp. 16-19)	2016	16-19	A supply chain consists of all parties involved, directly or indirectly, in fulfilling a customer request. A supply chain is dynamic and involves the constant flow of information, product, and funds among different stages.
(Ayers & Odegaard, 2017)	2017		Design, maintenance, and operation of supply chain processes, including those for base and extended products, for satisfaction of end-user needs.
(Soonhong, Zacharia, and, Smith, 2019)	2019		Defining Supply Chain Management. In the Past, Present, and Future Based on the field interviews and literature review, we defined SCM as “the systemic, strategic coordination of the traditional business functions within a particular company and across businesses within the supply chain, for the purposes of improving the long-term performance of the individual companies and the supply chain as a whole.”
			Multiple authors are mentioned here, that established the core and common elements involved in SCM, regardless of contextual differences, such as those across industries, products and services, and structures.

Government Participant Information Sheet

Consent for Interview Research

Exploring the impact of moderators and mediators on the Rice Value Chain within the
Ayeyarwady Delta

Dear Sir / Madam, my name is Patrick McCrudden.

I am a fulltime PhD student at the University of Salford, Manchester, UK; and I am in the process of writing my thesis. The purpose of the research is to determine “value-adding” within the Myanmar Rice Food Supply Chain.

You are invited to participate in this research project because you are a member of Government or have some responsibilities to create policy and deploy services within the agriculture sector. Your participation in this research project is voluntary. You may decline altogether or answer any questions you do not wish to answer. There are no known risks to participation beyond those encountered in everyday life. Your responses will remain confidential and anonymous.

Data from this research will be kept under lock and key and reported only as a collective combined total. No one other than the researchers will know your answers. If you agree to participate in this project, please allow approximately forty-five (45) minutes to complete the case study interview.

If you have any questions about this project, feel free to contact Mr Patrick McCrudden p.mccrudden1@edu.salford.ac.uk

Thank you for your assistance in this critical endeavour. I am very grateful for your kind assistance.

Sincerely yours,

Patrick McCrudden

I consent to participate in this research project.

Name: _____

Signature _____

Date _____

MRF Participant Information Sheet

Consent for Research Case Study

Exploring the impact of moderators and mediators on the Rice Value Chain within the
Ayeyarwady Delta

Dear Sir / Madam, my name is Patrick McCrudden.

I am a fulltime PhD student at the University of Salford, Manchester, UK; and I am in the process of writing my thesis. The purpose of the research is to determine “value” within the Myanmar Rice Food Chain.

You are invited to participate in this research project because you are a member of the Myanmar Rice Federation (MRF). Your participation in this research project is voluntary. You may decline altogether or refuse to answer any questions you do not wish to answer. There are no known risks to participation beyond those encountered in everyday life. Your responses will remain confidential and anonymous.

Data from this research will be kept under lock and key and reported only as a collective combined total. No one other than the researchers will know your answers to these face-to-face case study interviews.

If you have any questions about this project, feel free to contact Mr Patrick McCrudden p.mccrudden1@edu.salford.ac.uk

Thank you for your assistance in this critical endeavour. I am very grateful for your kind assistance.

Sincerely yours,

Patrick McCrudden

I consent to participate in this research project.

Name: _____

Signature _____

Date _____

Banks Participant Information Sheet

Consent for Research Case Study

Exploring the impact of moderators and mediators on the Rice Value Chain within the
Ayeyarwady Delta

Dear Sir / Madam, my name is Patrick McCrudden.

I am a fulltime PhD student at the University of Salford, Manchester, UK; and I am in the process of writing my thesis. The purpose of the research is to determine “value” within the Myanmar Rice Food Chain.

You are invited to participate in this research project because you are a senior executive of an established bank in Myanmar. Your participation in this research project is voluntary. You may decline altogether or refuse to answer any questions you do not wish to answer. There are no known risks to participation beyond those encountered in everyday life. Your responses will remain confidential and anonymous.

Data from this research will be kept under lock and key and reported only as a collective combined total. No one other than the researchers will know your answers to these face-to-face case study interviews.

If you have any questions about this project, feel free to contact Mr Patrick McCrudden p.mccrudden1@edu.salford.ac.uk

Thank you for your assistance in this critical endeavour. I am very grateful for your kind assistance.

Sincerely yours,

Patrick McCrudden

I consent to participate in this research project.

Name: _____

Signature _____


Date _____

Ethics Application Panel Decision & Data protection checklist

Ethics Application: Panel Decision



ethics
To: Patrick McCrudden

 You replied to this message on 03/03/2021 10:04.
This message was sent with Low importance.

The Ethics Panel has reviewed your application: Exploring the impact of moderators and mediators on the Rice Value Chain within the Ayeyarwady Delta
Application ID: 1344

The decision is: Application Approved.

The Chair of the Panel made these comments:

Dear Patrick,

Your application can now be considered approved but, upon the panel's recommendation, can you please attend to the following:

1. Please complete a Data Protection Checklist which is available to download here: <https://testlivesalfordac.sharepoint.com/sites/EthicsandResearchGovernance/SitePages/Guidance-%26-Resources.aspx>

Type of activity:	Qualitative & quantitative Surveys	
Activity name/title:	Exploring the impact of moderators and mediators on the Rice Value Chain within the Ayeyarwady Delta	
Processing personal data fairly		
<p>The GDPR requires us to process personal data fairly and lawfully. In practice and in the context of research, we must:</p> <ul style="list-style-type: none">• have legitimate grounds (this is our public task);• not use the data in ways that have unjustified adverse effects on the individuals concerned;• be transparent about how you intend to use the data, and give individuals appropriate <i>privacy notices</i> when collecting their personal data;• handle people’s personal data only in ways they would reasonably expect; and• make sure you do not do anything unlawful with the data.		
If your activity involves <i>sensitive personal data</i> , have you checked and confirmed that you can satisfy <u>a condition for processing this kind of personal data from the GDPR</u> ? Sensitive personal data includes: - data about racial or ethnic origin; political opinions; religious or similar beliefs; trade union membership; physical or mental health or condition; sexual life; commission or alleged commission of any offences; or any proceedings for any offence committed or alleged to have been committed.		Not Applicable
If the intended use of the personal data would or would be likely to have an adverse effect on one or more individuals, have you considered and documented why that adverse effect is justified?		Not Applicable

<p>Have you documented why you are collecting the specific items of information to demonstrate that you have legitimate grounds for doing so e.g. if you are carrying out research into how students' music preferences affect their degree classification and also collecting participants' shoe sizes, can you show you have a legitimate need for this information?</p>	<p>Yes</p>
<p>Have you included a research privacy notice in the Participant Information Sheet to provide to individuals? The privacy notice tells individuals how we will use their personal data once we have it, the purpose or purposes for which you intend to process the information; and any extra information you need to give individuals in the circumstances to enable you to process the information fairly, such as whether or not the information will be disclosed to a third party.</p>	<p>Yes</p>
<p>Security</p> <p>Ensuring personal data are secure at all times is extremely important. The GDPR requires us to ensure that <i>appropriate technical and organisational measures shall be taken against unauthorised or unlawful processing of personal data and against accidental loss or destruction of, or damage to, personal data</i>. It is important that any personal data you collect or use during your activities remains secure until it is destroyed, which includes ensuring that only those who are authorised to access and use the data can do so.</p> <p>For further guidance on information security, please see IT Security and Information Governance</p>	
<p>If you are intending to publish information, which could identify individuals, have you made those individuals aware that this will happen via our PIS and Consent Form and obtained their consent, if appropriate?</p>	<p>Yes</p>
<p>Will papers, files, audio visual recordings, CDs, USB (memory) sticks or other media, which contain personal data, be kept in locked cabinets, cupboards, drawers etc. when the offices are vacated?</p>	<p>Yes</p>
<p>Do all individuals who will have access to or be using the personal data understand that it must not be provided to any unauthorised person (which includes disclosing information to family members or other representatives of data subjects, unless the data subject has given consent for us to do this)?</p>	<p>Yes</p>

Do all individuals, who will have access to or be using the personal data, understand their responsibilities under the GDPR and have they received data protection training?	Yes
Do you have appropriate procedures in place to ensure the security of the personal data if it is removed from Salford offices for any reason? Electronic data must only be removed if it is stored on encrypted devices or media e.g. an encrypted disc or USB stick, an encrypted laptop etc. Alternatively, it can be accessed remotely via a secure connection. If an unencrypted device containing personal data is lost or stolen, it is likely to lead to a substantial fine for a breach of the GDPR. Non-electronic records must be rigorously safeguarded at all times and not left unattended or in view of unauthorised people. Laptops, USB sticks and other devices, papers or any other form of personal data must not be left in cars.	Yes
Will the personal data be stored on the Salford network in a secure location with restricted access, to prevent unauthorised parties who have no right or need accessing the data?	Yes
Are all individuals who will have access to or use the personal data aware that personal information should not be stored off the Salford network and should only be stored on equipment owned or leased by Salford, unless exceptional circumstances apply? Storage under such exceptional circumstances must include the use of appropriate security measures. No personal information should be stored on any removable media e.g. USB sticks, CDs or devices e.g. laptops, smartphones unless they are encrypted.	Yes
Are all individuals, who will have access to or use the personal data, aware that any information accessed via remote working methods such as Outlook Web Access or similar must be treated securely in line with relevant legislation and all University guidelines? Salford business information, including personal data, should not be stored on personal, non-Salford equipment or devices unless exceptional circumstances apply.	Yes
Are all individuals who will have access to or use the personal data aware that non-university system email is not a secure method of communication and do they know how to encrypt documents so that they can be attached to an email and sent securely? N.B. Encryption passwords must be provided separately and never included in the same email as the encrypted attachment.	Yes

Are all individuals who will have access to or use the personal data aware that all non-electronic material which contains personal data and has been authorised for disposal must be disposed of via the University's confidential waste service (including handwritten notes, computer print-outs etc.)?	Yes
Are all individuals who will have access to or use the personal data aware that any paper documents, electronic media or hardware which has been designated for disposal must be kept in a secure location until it has been appropriately destroyed and any information it contains is no longer accessible or recoverable? Electronic media and hardware should be disposed of in line with LIS guidelines and procedures.	Yes
Can you confirm that if personal data will be transferred overseas (outside the EEA), you have taken advice from <u>Information Governance</u> to ensure the transfer can legally take place? This includes via email and by virtue of using 'cloud' providers which store your data on their servers based overseas.	Yes