Value chain analysis of Coastal Fisheries in Tanzania

FINAL REPORT APPENDICES

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APPENDIX SECTION 1 INTRODUCTION

Agenda and list of stakeholders met during the field trips of the team

Mission 1: November 2021, R. le Gouvello, R. Lamboll and Y. Mgawe

Programme

Date	Place	Activity
4th	Zanzibar	• Arrival of the Team in Zanzibar • MEETING with ZAMACOS (Zanzibar Marine and Coast Solution) • MEETING with WIOMSA
5th	Zanzibar	• Director of Fisheries in Zanzibar • MEETING at Deep Sea Fishing Authority (DFSA) in Zanzibar
6th	Zanzibar	• MEETING at Mabluu fish market • MEETING at Ngalawa fish landing site
7th	Zanzibar	• MEETING at Kizingo fish landing site • MEETING at Mazizini fish landing site cum local boat building yard
8th	Zanzibar	• Ministry of Blue Economy • MEETING at fish importers • MEETING at Unguja Ukuu (Kai Pwani) Fish auction market
9th	Zanzibar	• IUCN Workshop • MEETING at Mwambao /MCC NGO • MEETING at Mangapwani fish landing site • Darajani market • Travel to Dar
10th	Dar es Salaam	• MEETING at Fisheries Zonal Office in Dar • MEETING at Fish processing Company in Dar
11th	Dar es Salaam	• COSTECH for study permit • MEETING session with World Bank Consultant through Zoom • MEETING at fish processing company in Dar
12th	Dar es Salaam / Kilwa District	• Travel to Kilwa Masoko • Courtesy Call at District Office • MEETING session with District Fisheries Officers
13th	Kilwa Kivinje	• MEETING sessions at Kilwa Kivinje • MEETING with Congolese Traders
14th	Somanga	• MEETING at Somanga fishing community • Departure to Songo songo Island
15th	Songo songo Island	• MEETING in Songo songo Island • Departure to Mafia Island
16th	Mafia Island	• MEETING session with MPA technical staff in Mafia • MEETING session with fisheries officers in Mafia district • MEETING sessions at Kilindoni fish landing site in Mafia district
17th	Mafia Island	• MEETING at Kilindoni fish landing site • Processing plant MAFIA • Action Aid, Mafia • NMB Bank, Mafia • District Education Office, Mafia • Women's Group and Focus Group, Kinondoni • Fish Cooperative

18th	Mafia Island	• Team meeting at Bustani Hotel • Travel back to Dar
19th	Dar – es -Salaam	• Meeting with EUD in Dar es Salaam • Team meeting at Holiday Inn in Dar
20th	Dar – es -Salaam	• MEETING at Ferry fish market in Dar • Team meeting at Holiday Inn in Dar • Departure of the Team back to respective home countries

Key actors met

Organization/ Community	Actors met
ZANZIBAR	
ZAMACOS (Zanzibar Marine and Coast Solution)	*Senior Researcher IMS-UDSM*
WIOMSA	*Marine Science Coordinator - WIOMSA*
Department of Fisheries Development	*Officers in Fisheries dpt in Zanzibar*
Deep Sea Fishing Authority (DFSA),	*Fisheries Officer- Data Collection* *TAFIRI researcher seconded to DFSA* *Fish Project Coordinators*
Mabluu fish market	*Fish retailers*
Ngalawa fish landing site, Kihinani, One Cooperative	*5 cooperative members*
One Cooperative	*2 Committee members, of one Cooperative*
	One Skipper of the Dagaa/ Anchovy Seine net Fishing boat
Kizingo fish landing site Skippers' Association (unregistered)	*Chairman of the Skippers' Association*
Fishers' Association, Zanzibar Urban District	*One representant of Fishers' Association, Zanzibar Urban District*
Mazizini fish landing site cum local boat building yard	*1 Boat owner / Local boat builder* *2 Long line fishers* *Long line fisher*
Ministry of Blue Economy and Fisheries	*Representants of Ministry of Blue Economy and Fisheries, Zanzibar*
Sea Food Company -fish importers	*Manager*
Unguja Ukuu (Kai Pwani) Fish auction market	*Retired Beach Recorder*
Mwambao Coastal Community Network /MCC NGO	*Officers*
IUCN Workshop (coffee pause)	*Various stakeholders who were invited (NGOs, UN)*
Mangapwani fish landing site	*1 assistant skipper of anchovy fishing boat* *1 fish trader* *1 fish processor*
Darajani market	*Observations of traders, fisheries and prices only*
DAR ES SALAAM	
Fisheries Development Division, Coastal Zone Office, Dar es Salaam	*2 officers of Fish Quality Control, Standards and Marketing Section, Coastal Zone*
Processing Company, Dar es Salaam	*Managing Director*
World Bank, Dar es Salaam (by Zoom)	*Senior Fisheries Specialist*
Fish processing company, Dar-es Salaam	*3 employees (qualified)*
Ferry fish market, Dar Es Salaam	*2 officers*
EUD in Dar es Salaam	*Officers*
KILWA DISTRICT	
Kilwa District Office	*1 District Fisheries Officer*

Kilwa Kivinje *SSI with local actors and Congolese Traders*	*2 Boat owners of anchovy fishing boat* *2 Fish traders* *Skipper of anchovy fishing boat* *Senior Skipper / Trainer of anchovy fishing* *Fish trader from Democratic Republic of Congo (DRC)* *Boat owner and drift net fisher* *Skipper of drift net fishing boat*
Kilwa Kivinje Beach Management Unit (BMU) Committee	*Treasurer, BMU (also food vendor)* *Chairperson, BMU (also fish buyer/ trader)* *Secretary, BMU (also fisher)* *Elder of BMU (also buyer/ processor -Uchakataji)*
Fish Boilers (Wachemshaji) at Kilwa Kivinje	*3 Boilers of fish*
Women's focus group Kilwa Kivinje	*6 members*
Fish Carriers at Kilwa Kivinje	*2 Fish Carriers*
Crew members on dagaa vessel, Kilwa Kivinje	*3 Crew members*
Dagaa fish Packer, Kilwa Kivinje	*Fish packer*
Fish drier, Kilwa Kivinje	*Fish drier*
Fish Auctioneers, Kilwa Kivinje	*3 Auctioneers*
Somanga fishing community	*3 Long line fishers*
Somanga Beach Management Unit (BMU) Committee	*4 representants of – Patrol Committee*
Women's focus group Somanga	*Village chairperson* *2 members of the community*
Songo songo Island	*Fisheries Officer in-charge of Songo songo fisheries* *Senior Officer of Tanzania Petroleum Development Corporation (TPDC) at Songo songo.* *4 Octopus / finfish fishers* *Members of Village government committee* *Owner of fibre glass boat* *Octopus fisher / trader* *Octopus trader* *Octopus fisher / trader*
Women fishers, / Women Focus Group Songo Songo	*Octopus fisher* *Octopus fisher/ / sea weed farming* *Octopus fisher/ transports dagaa* *Octopus fisher/ sell clothes*
VIllage Leaders, Songo Songo	*Village chairman* *2 Executive Officers* *2 Members of village committee* *Member of village committee*
Songo Songo Beach Management Unit (BMU) Committee	*Chairman BMU* *Member BMU* *Secretary BMU*
MAFIA	
District Commissioner's Office	*District Administrative Secretary*
Mafia District Executive Director	*Acting District Executive Director*
Mafia Island Marine Park technical staff	*Warden in Charge of the MPA* *Senior Officer MIMP*
District Fisheries Department fisheries officers, Mafia district	*3 Fisheries Officer*
Kilondoni Beach Management Unit (BMU) Committee	*Chairman of BMU at Kilindoni* *BMU Secretary at Kilindoni* *2 BMU Committee Members*

Kilindoni fish landing site Ring net fishers	*Shared Boat owner and skipper* *2 assistant skippers*
Kilondoni Fish landing site Crew Member ,	*Crew Member*
Kilondoni Fish landing site fee collector	*Market fee collector*
Prawn Fishers (based in Rufiji) who have migrated to Mafia following closed season for prawn.	*Prawn fisher from Kiomboni Rufiji delta area* *Prawn fisher from Kiasi Rufiji delta area* *Prawn fisher from Mbwera Rufiji Delta area*
Processing plant	*Acting Manager*
Action Aid, Mafia	*Programme and Sponsorship Officer*
NMB Bank, Mafia	*Bank Officer (providing info on Insurance for fishers)*
District Education Office, Mafia	*District Primary Education Officer* *District Academic Officer*
Women's Group and Focus Group, Kinondoni	*6 Members*
Fish Cooperative	*Chair Fish Cooperative*

Mission 1 complementary: January 2022, A. Martini and Y. Mgawe (in MLT) and N. Jiddawi (in ZNZ)

Mon, 17/01/2021			
Time	**Site**	**Visit to**	**People met**
morning	Dar Es Salaam	arrival	
	Dar Es Salaam	Food Processing Company	Owner and staff
afternoon	Dar Es Salaam	TAFIRI	15 researchers
Tue, 18/01/2021			
Time	**Site**	**Visit to**	
morning	Dar-Kilwa Somanga	travel	
afternoon	Kilwa Somanga	Landing site (reef fish and pelagic)	District officer + 3 fishers
Wed, 19/01/2021			
Time	**Site**	**Visit to**	
morning	Kilwa Kivinje	BMU office	BMU officer
afternoon		Collection centre	Staff person
Thur, 20/01/22			
		Small Pelagic processing site	Processor
Time	**Site**	**Visit to**	
morning	Songo Songo	BMU office	BMU chairman + 4 fishers
afternoon		Processing site	Anchovy processor
Fri, 21/01/2021			
Time	**Site**	**Visit to**	
morning	Mafia		Courtesy call at the district administrative secretary and executive director
afternoon	Mafia	Mafia Island Marine Park	Director
Sat, 22/01/2021			
Time	**Site**	**Visit to**	
morning	Mafia	Landing site	Fisher targeting different species
afternoon	Mafia-Dar	Travel to Dar Es Salaam	
Sun, 23/01/2021			
Time	**Site**	**Visit to**	
	Dar es Salaam	Visit to FFM	
		Transfer to ZNZ	Visits to fishing gears shops and Stone Town urban market
		Mabluu fish market	3 Chillers
		Mazinini landing site	3 fishers
		Mwambao	
		Street market	retailer
Mon, 24/01/2021			
Time	**Site**	**Visit to**	
	Unguja Ukuu	Landing site (anchovies VC)	4 fishers
Tue, 25/01/2021			

Time	Site	Visit to	
	Stone Town	WIOMSA office	ZAFICO person
		Mkokotoni landing site	3 fishers
		Fungu Refu landing site	processor
Wed, 26/01/2021			
Time	**Site**	**Visit to**	
	Pemba	Marine Conservation Institute	Researcher
		Landing sites	4 fishers + 1 processor + 1 retailer
Thur, 27/01/2021			
Time	**Site**	**Visit to**	
	Dar es Salaam	EUD office	debriefing
Fri, 28/01/2021			
Time	**Site**	**Visit to**	
	Zanzibar-Rome	travel	

Mission 2: May 2022, R. le Gouvello, R. Lamboll, A. Martini and Y. Mgwawe

Sunday, May 2, 2022 – departure from Europe				
Time	*City*	*Activities*	*Stakeholder*	*Location*
Evening	Arrival in Zanzibar or Dar	Traveling day		
Time	*City*	*Appointments*		
Morning	Zanzibar city	Team meeting. Courtesy calls (Permanent Secretary and Directors, ZAFIRI). Contact-whole team junction with two local experts	MoBEF, ZAFIRI officers	*At the Ministry*
Afternoon			Fish Importer	*In Zanzibar City*
Morning Afternoon	villages, landing areas in Unguja	- Community visits for R. Lamboll and A. Martini, with the 2 experts Dr. Narriman Jiddawi and Wahira Othman	- Fishers FGD (6 including Basket trappers, lline, octopus-(male) - VFC FGD (6 represenatives (male) - Women's FGD (6 including seaweed farming, octopus, shellfish, net fishing in a group)	*Matemwe*
Tuesday 11, 2022				
Time	*City*	*Appointments*		
Whole day	Zanzibar City, villages, landing areas in Unguja	Community visits for R. Lamboll and A. Martini, and R. le Gouvello, and 3 experts Y. Mgawe, N. Jiddawi and W.Othman	3 Fishers (Longline, nets, traps) - Fishers FGD (6 including Basket trappers, line, ringnet male) - VFC FGD (6 represenatives (male) - Women's FGD (6 including seaweed farming, sea cucumber farming, shellfish)	*Chwaka field site, in Menai Bay+ 1 auction place*
			1 fisher-hotel supplier Hotel staff	*Jambiani*
Wednesday, May 12, 2022				
Time	*City*	*Appointments*		
Morning	Zanzibar	Meetings	MoBEF Officers	*MoBEF building*

afternoon	Zanzibar	Meeting one officer of the Gouvello and Y. Mgawe	Bureau of statistics, OCGS	*OCGS building*
		Visit of the future Malindi market	One manager from the Japanese support JICA	*Malindi future market*
		Preliminary meeting	Hotel staff, responsible for seafood purchase	*Maru Maru, Stone Town*
Morning		Community visits for R. Lamboll and A. Martini, with the 2 experts Dr. Narriman Jiddawi and Wahira Othman Community visits for R. Lamboll and A. Martini, with the 2 experts Dr. Narriman Jiddawi and Wahira Othman	- Fishers FGD (6 including Basket trappers, line, deep sea nylon net, small net, octopus-(male) - VFC FGD (6 represenatives (male) - Women's FGD (6 including octopus, shellfish) + other 3 fishers, auction/market site + boat builder	*Nungwi*
Afternoon				
Thursday 13, 2022				
Morning		Meeting the officers of Dpt of Marine conservation and Fisheries whole team	10 officers	*Dpt of Fisheries*
Afternoon		Meeting whole team	1 anchovy export trader	idem
Friday, May 13, 2022				
Time	*City*	*Status*		
Morning	Zanzibar	meeting WIOMSA whole team + N. Jiddawi	All 4 WIOMSA membres	*Wiomsa office in Stone Twon*
Afternoon	Zanzibar	Team work		*Wiomsa office*
Evening	Zanzibar	Meeting with Mwambao Whole team + N. Jiddawi	Mwambao team	*Mwambao office in Zanzibar City*
Saturday May 14 – Sunday May 15, 2022				
Time	*City*	*Status*	*Stakeholder*	*Place*
Saturday Morning	Stone Town	Meeting whole team+ N. Jiddawi	MoBEF, PS	*Zanzibar city*
Saturday afternoon	Stone Town	Meeting with Hotel manager and Seafood hotel supplier, whole team+ N. Jiddawi	Hotel buyers, agents	*Maru Maru, Stone Town*
	idem	Team work, + N. Jiddawi		*WIOMSA office*
Satrurday Evening	idem	Team, dinner with	NGO representants	*Stone town*
Sunday morning	Zanzibar Dar Es Salaam Dodoma	Teamwork and plane transfer to Dar Es Salaam - Dodoma		

Monday, May 16, 2022				
Time	*City*	*Status*		
Morning	Dodoma	Work session with senior officers of Ministry Livestock and fisheries, including gender issues; regional development	14 officers	*MLF, Dodoma*
Lunch time	Dodoma	Ministry Livestock and Fisheries Permanent secretary and dir. Of Ministry Livestock and Fisheries	Directors	*Hotel in Dodoma*
Evening	Dar es Salaam	Dinner	French Development Agency representant	*Holiday Inn, Dar*
Tuesday, May 17, 2022				
Time	*City*	*Status*		
Morning	Dar es Salaam	Work session with TAFIRI, whole team	16 people, including directors	*TAFIRI Building*
Afternoon	Dar es Salaam	Meeting with Industrial processor, R. Le Gouvello, A. Martini and Y. Mgawe	Director, CEO	*idem*
		Meeting with the working group of SSF task force, TAWFA and FAO representant R. Lamboll and R. Le Gouvello	5-10 women and men	*idem*
		Team work		
Wednesday , May 18, 2022				
Time	*City*	*Status*		
Morning	Dar es Salaam	Team work		*Holiday Inn, Dar*
Afternoon	Dar es Salaam	De-brief Meeting with the EUD	EUD officers	*EUD office, Dar*
Evening	Flight Dar es Salaam - Europe	Team return		
Thursday, May 19, 2022 – arrival to Italy, France, UK				

APPENDIX SECTION 2 FUNCTIONAL ANALYSIS

Appendix 2.A Tables of main institutions associated to fisheries in MLT

Region	Main institution in charge of fisheries/ Department(s)	Actions/activities associated with coastal fisheries
MLT	**CENTRAL GOVERNMENT**	
Ministry of Livestock and Fisheries (MLF)	Dpt of Fisheries and Aquaculture development has a legal mandate to manage and regulate the exploitation and utilization of the fisheries resources in a sustainable manner.	to formulate policy, strategy, programmes/projects, laws and regulations, establish guidelines, promote investments and regulate the fisheries sector
	Deep-Sea Fishing Authority Governmental Institution formed in 2010 under the Deep-Sea Fishing Authority Act No. 17 of 2007 (Amendment) and Deep-Sea Fishing Authority Regulations of 2009.	to ensure that deep sea fishing activities (between the 12 NM and 220 NM of the EEZ) are managed by single Government entity both for Tanzania MLT and Tanzania ZNZ
	Regional/ District Fisheries officers	To control, to monitor, to collect data
	Tanzania Fisheries Research Institute (TAFIRI) and Fisheries Education and Training Agency (FETA),	Education, training and research, in collaborations with universities and other stakeholders
	Tanzania Fishing Corporation (TAFICO) Private/public	To monitor and encourage the development of the coastal fisheries VCs
Ministry responsible for Finance and Planning	In charge also of the implementation of the Blue Economy strategy	Allocate adequate funds for fisheries sector development; Promote legal and policy environment for private sector participation; Monitor and evaluate fisheries sector development and its contribution in poverty reduction; Provide regulatory services for financial institutions so as to encourage increased private sector investment.
Ministry responsible for Natural Resources and Tourism		Promote sustainable management and utilization of forestry, wildlife and wetland resources; Ensure conservation of forest and wildlife reserves, wetlands and catchment areas; Strengthen mechanisms for sustainable utilization of fisheries resources in the forestry and wildlife reserves by neighbouring fishing communities.
Ministry responsible for Lands		Streamline the procedures for land acquisition for different fisheries interventions; such as aquaculture activities, designated fish landing site, fishing ports and markets; Ensure land security for aqua farmers and marginalized groups
Ministry responsible for Agriculture		Incorporate fisheries activities into agricultural development programs, projects and plans; Promote integration of crops and fish production activities in small holder farming systems;Promote use of animal waste/manure for fish and crop production.
Ministry responsible for Defence		Ensure conservation of fisheries resources; Strengthen mechanisms for monitoring control and surveillance.
Ministry responsible for Judiciary		Facilitate formulation of fisheries and aquaculture Legislations; Facilitate the conduct of court proceedings related to fisheries and aquaculture matters; Advice fisheries sector on legal and contractual issues

TABLE 2A: PUBLIC SECTOR ORGANIZATIONS INVOLVED IN COASTAL FISHERIES MANAGEMENT IN MLT (SOURCE: MGAWE, 2021, UPDATED WITH PRIMARY DATA)

Region	Main institution in charge of fisheries/ Department(s)	Actions/activities
		.
Ministry responsible for Home Affairs		Facilitate the enforcement of laws, By laws and Regulation in fisheries sector; Enhance control of illegal trade in cross border fish and fishery and aquaculture products.
Ministry responsible for Industries		Promote fisheries and aquaculture processing through the Rural Industrialization Strategy; Establish legal and institutional framework conducive to facilitate both local and international trade in fish and fishery and aquaculture products; Collaborate with MLF to develop guidelines on grades and standards on fish, fishery and aquaculture products; Regulate the manufacture and importation of fisheries and aquaculture inputs and accessories; and Provide regulatory services on quality standards for fish, fishery and aquaculture products.
Ministry of Education, Science and Technology	The academic and research institutions that deal with fisheries research Sokoine University of Agriculture (SUA), University of Dar es Salaam (UDSM), COSTECH permits	Provision of scientific information; Conduct joint research with international fisheries academic and research institutions; Accumulate research findings and ensure their dissemination to stakeholders; Advice on utilization, management and conservation of fisheries resources. Provide education, training, and extension services.
MLT	**REGIONAL GOVERNMENT**	
Regional government/Decentralization Local Government Authorities	Regional authorities (Region/District/municipalities) The Local Government Authorities (LGAs) are in place in major areas, including the coastal areas.	Participation in the management and conservation of aquatic and coastal resources; Issuing license to fishing vessels having lengths below 11.0 meters; Execute fisheries extension services; Collection and dissemination of fisheries data and information; Manpower planning, recruitment and human resources development; Enforcement of fisheries legislation;

TABLE 2A: PUBLIC SECTOR ORGANIZATIONS INVOLVED IN COASTAL FISHERIES MANAGEMENT IN MLT (SOURCE: MGAWE, 2021, UPDATED WITH PRIMARY DATA) (CONTINUED)

Appendix 2.B Tables of main institutions associated to fisheries in ZNZ

Region	Main institution in charge of fisheries/ Department(s)	Actions/activities related to fisheries
ZNZ	**CENTRAL GOVERNMENT**	
Ministry of Blue Economy and Fisheries (MoBEF)	The BE strategy is handled by the Prime Secretary and his director, in charge of coordinating the BE implementation. Created in 2020 for the BE strategy (RGoZ, 2020). Port-folio as below:	It has also the responsibility to coordinate all the BE activities including those that are not directly under its supervision, such as tourism.
	Department of Fisheries Development (DFDZ)	Role: To promote, develop, control and monitor for the purpose of proper management of all fisheries and related activities in artisanal and semi-industries; To build capacity for effective management of fishing and related activities; To educate and promote public awareness on the fishing activities; To encourage sustainable use of marine resources, quality control, value addition and marketing; To administer fisheries activities and all marine products from related industries; To carry out scientific research or other activities for proper management of fisheries related industry
	Department of Policy, Planning and BE development:	Coordination of planning, in coastal areas, in cooperation with other ministries, in charge of ICZM.
	Department of Marine Conservation: With the Marine Conservation Unit:	Creation and management of MCAs, MCAs creation and management, coordinate Fisheries working groups.
	Direction of Oil and Gas	Defines and follows the exploration and exploitation of oil and gas
	The Institute of Fisheries Research Zanzibar (ZAFIRI) In collaboration with TAFIRI and universities	Conduct fisheries independent research to facilitate the implementation of fisheries management.
	ZNZ Fishing Corporation (ZAFICO) Private/public entity	Support to the value chain actors, Explore and develop activities/initiatives and investments to enhance the value chain efficiencies
Ministry of Communication and Transportation	Zanzibar Port Corporation	This is one of stakeholders in the use of marine environment as it manages five ports.
	Zanzibar Maritime Authority	In the context of fisheries: registration of fishing vessels, and ensuring that they are seaworthy and safely operating in the waters.
Ministry of Industry, Trade and Investment	involved in all matters related to industrial development policy.	works with the guidance of the Fisheries institutions to develop sector policies related to fisheries
Ministry of Tourism	The Zanzibar Tourism Act of 2009 establishes the Commission for Tourism with overall purpose of managing tourism activities. ZATI and ZAFI	control Marine Tourism Industry, covering all activities authorized in areas where fishers are operating.

TABLE 2B: PUBLIC SECTOR ORGANIZATIONS INVOLVED IN COASTAL FISHERIES MANAGEMENT IN ZNZ (SOURCE: DFDZ, 2019, RGOZ 2020, TORRE DE LA CASTRO ET AL. 2006, UPDATED WITH PRIMARY DATA)

Region	Main institution in charge of fisheries/ Department(s)	Actions/activities related to fisheries
ZNZ	**REGIONAL GOVERNMENT**	
Ministry responsible for Local Government	The regional Government System	The Regional Administration Act establishes offices for Regional Commissioner, District Commissioner and Sheha.
	District Fisheries Officers	Collection of boat registration fees; Collection of vessel licence fee; Collection of fish landing levy; Preparation of development plans for the fishery for incorporation into the district-wide natural resources plan; Supervision of the Beach Recorders in their data collection tasks (CAS), and submitting the resulting data; Assist in the conduct of the periodic Frame Surveys; Liaise with the fisheries representatives at the village levels; Application of bye-laws Collection of annual fishing license; Supervises fisheries enforcement activities

TABLE 2B: PUBLIC SECTOR ORGANIZATIONS INVOLVED IN COASTAL FISHERIES MANAGEMENT IN ZNZ (SOURCE: DFDZ, 2019, RGOZ 2020, TORRE DE LA CASTRO ET AL. 2006, UPDATED WITH PRIMARY DATA) (CONTINUED)

Appendix 2.C Table of Coastal and Marine Resource -related Policies, strategies and legislation (Details)

MLT	
National sectoral policies and strategies	**Goal**
National Environmental Policy (URT, 1997)	Provides a general explanation for the management of the environment and natural resources and a framework for the environmental management policy for addressing issues of land degradation, environmental pollution, loss of habitat and biodiversity, deterioration of aquatic systems, and deforestation.
National Fisheries Sector Policy and Strategy Statement (1997)	Improving resource management and control; integration of environmental protection and development; improving training and education; improving knowledge of the fisheries resource; efficient resource utilisation and marketing; applied/strategic research; aquaculture development; community participation; fisheries information management; gender and development; cross-sectoral collaboration; integrated coastal area management; regional and international cooperation.
National Biodiversity Strategy and Action Plan (NBSAP) (1998)	Issued to comply with CDB requirements
Forest Policy (URT, 1998)	Enhancing the contribution of the forest sector (including mangrove forests) to the sustainable development and conservation and management of natural resources for the benefit of the present and future generations.
National Integrated Coastal Environment Management Strategy (NICEMS) (2003)	Provides a framework for the safeguarding conservation and sustainable utilization of coastal biodiversity. Calls for the participation of all relevant stakeholders in planning and implementation issues. Promotes sustainable use of coastal and marine resources. Guide for sector-specific and cross-sectoral policies on coastal and marine environment.
Wildlife Policy, 2007	Protection and sustainable utilization of the wildlife resources and their environments.
Fisheries Policy (URT, 2015 – revising the 1997 Policy)	Promotes conservation, development and sustainable management of fisheries resources for the benefit of the present and future generations. Emphasizes sustainable management and utilization rather than development. Highlights improved involvement of fisher communities in planning, development and management of the fisheries resources.

MLT	
Legislation	**Goal**
Territorial Sea and Exclusive Economic Zone (TSEEZ) Act, No. 3 of 1989	Provides for implementation of the UN Convention on the Law of the Sea (UNCLOS). Provides for creation of marine protected areas especially within the EEZ. Provides for the prevention and control of pollution
Marine Parks and Reserves (MPR) Act 29, 1994	Provides for establishment of MPRU under the Division of Fisheries Provides for establishment, management and monitoring of MPAs.
Investment Act, 1997	An Act to make provision for investment in Tanzania, to provide for more favourable conditions for investors, and for related matters
Deep-Sea Fishing Authority (DSFA) Act, 1998, updated in 2007	Provides for the management of fisheries resources in the EEZ. Promote, regulate and control fisheries activities (licensing, monitoring, controlling, and surveillance) in the EEZ Establish the Deep Sea Fishing Authority
Land Act, 1999	Provides for the basic law in relation to land other than the village land, the management of land, settlement of disputes and related matters
Village Land Act (1999)	An Act to provide for the management and administration of land in villages, and for related matters.
Forest Act, 2002	Provides for the conservation and management of forest resources in Tanzania and regulates the trade of forest produce
Fisheries Act, No 22 of 2003	The principal fisheries management (including licencing, registering, enforcement and inspection) legal framework in and outside protected areas
Environmental Management Act (EMA), No. 20 of 2004	legal and institutional framework for the sustainable management of the environment at all administrative levels in Mainland Tanzania. Outlines principles of environmental management, environmental impact & risk assessment, prevention and control of pollution, waste management, and environmental quality standards, public participation, compliance and enforcement
Employment and Labour Relations Act, 2004	Promotes economic development through economic efficiency, productivity and social justice; provides the legal framework for effective and fair employment relations and minimum standards regarding conditions of work; provides a framework for voluntary collective bargaining; regulates the resort to industrial action as a means to resolve disputes; provides a framework for the resolution of disputes by mediation, arbitration and adjudication; gives effect to the provisions of the Constitution of the United Republic of Tanzania of 1977, in so far as they apply to employment and labour relations and conditions of work; and, gives effect to the core Conventions of the International Labour Organisation as well as other ratified conventions.
Water Resource Management Act, 2009	An Act to provide for institutional and legal framework for sustainable management and development of water resources; to outline principles for water resources management; to provide for the prevention and control of water pollution; to provide for participation of stakeholders and the general public in implementation of the National Water Policy, repeal of the Water Utilization (Control and Regulation) Act and to provide for related matters.
Fisheries Regulation, 2009 (amended in 2018, 2020)	makes provision with respect to, among other things, registration and licensing of fishing vessels, fishers and fish dealers, aquaculture development and management, management and control of fishing, fish and fishery products standards. The Regulations also introduce port state measures and provide for protection of waters from pollution by fisheries and aquaculture operations, the protection of critical habitats and activities of the Fisheries Development Fund. It provides details in respect to establishment of BMUs, membership, responsibilities and function. Provides for new regulations about royalties, imports, exports taxes for the fishery product.
Deep-Sea Fishing Authority Regulations, 2009	To ensure that deep sea fishing activities are managed by single Government entity both for Tanzania MLT and Tanzania ZNZ
The deep sea fisheries management and development Act (2021)	Provides for regulations on the conservation, management and development of the deep sea fisheries, regulation of licenses and permissions, allowed fishing vessels and gears, and monitoring, control and surveillance.

MLT	
Legally binding convention/Treaty/Programme	**Goal**
Convention on Biological Diversity 1992 [ratified 1996]	Lays out measures to be taken by Parties for conservation and sustainable use of biodiversity, including the establishment of a system of protected areas, or areas where special measures need to be taken to conserve biodiversity.
The Ramsar Convention on Wetlands, 1971 [ratified 2000]	Provides for designation of sites of 'international importance' that meet criteria covering representative, rare, unique wetland types or those especially important for conserving biodiversity
Convention Concerning the Protection of the World's Cultural and Natural Heritage (World Heritage Convention) (1977)	To ensure that effective and active measures are taken for the protection, conservation and presentation of the cultural and natural heritage situated on its territory, each State Party to this Convention shall endeavor, in so far as possible, and as appropriate for each country
Convention on the Conservation of Migratory Species of Wild Animals (1979)	Environmental treaty under the aegis of the United Nations Environment Programme. It provides a global platform for the conservation and sustainable use of migratory animals and their habitats.
United Nations Convention on the Law of the Sea (UNCLOS), 1982 [ratified 1985]	Gives coastal states jurisdiction over their inland waters, territorial seas (out to 12 nm from the coast) and Exclusive Economic Zone (EEZ) (200 nm or 370 km from the coast) provided they do not infringe the right of innocent passage by foreign ships
Convention for the Protection, Management and Development of the Marine and Coastal Environment of the Eastern African Region (Nairobi Convention)	Regional Seas convention, covering protection of the marine and coastal environment in the Eastern Africa Region. Requires and advocates for the establishment of a regional programme for the creation of a network of MMAs
Convention on International Trade in Endangered Species (CITES), 1975 [ratified 1979]	Provides for protection of wildlife against over-exploitation and prevent international trade from threatening their survival.
Cartagena Protocol on Biosafety (2000)	international agreement which aims to ensure the safe handling, transport and use of living modified organisms (LMOs) resulting from modern biotechnology that may have adverse effects on biological diversity, taking also into account risks to human health.

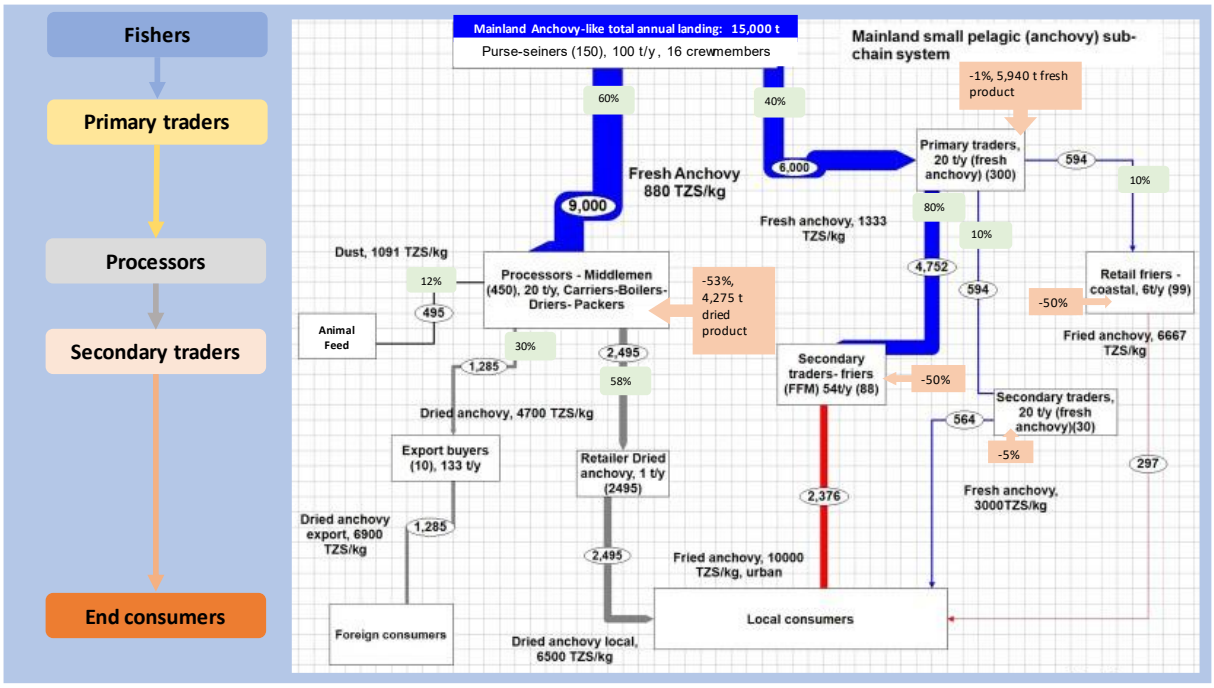
MLT	
Non-legally binding convention/Treaty/Programme	**Goal**
World Summit on Sustainable Development	The Plan promotes sustainable development in relation to conservation and the environment and sets several targets including the establishment of representative networks of MPAs worldwide
UNESCO Man and the Biosphere Programme (MAB)	Promotes sustainable use and conservation of biodiversity by improving the relationship between people and their environment.
FAO Code of Conduct for Responsible Fisheries	Provides guidance on sustainable fisheries management, and recommends that all critical fisheries habitats be protected.
International Coral Reef Initiative (ICRI)	A partnership of nations and organizations aimed at stopping the global degradation of coral reefs and related ecosystems.
International Coral Reef Action Network (ICRAN)	A global partnership of international organizations, NGOs, research and conservation organizations that are part of ICRI and focuses on sustainable development of coral reef areas.
African Protected Areas Initiative (APAI)	A Pan-African process under the New Partnership for African Development (NEPAD) established to provide guidance on protected areas (including coastal and marine issues) and promote implementation of the African Convention.
WWF Eastern African Marine Ecoregion (EAME) Programme	A partnership programme addressing large-scale conservation, MPAs and sustainable use of marine resources in mainland Eastern Africa.

ZNZ	
Policy	**Goal**
Land Tenure Act, 1992	Land allocation regulation
Zanzibar National Forest Policy, 1995	To protect, conserve and develop forest resources for the social, economic and environmental benefit of present and future generations of the people of Zanzibar.
Forest Resources Management and Conservation Act, 1996	It includes provisions for the conservation of coastal and marine habitats and species including mangrove forests and species such as dolphins, whales and porpoises in coastal territorial waters
Zanzibar Nature Conservation Areas Management Unit Act, 1999 and regulations	It enables the establishment of the Zanzibar Nature Conservation Areas Management Unit (Section 4). The main purpose of the Unit is to conserve Zanzibar's terrestrial aquatic or marine ecosystems including their indigenous plants or animals through the establishment and management of nature conservation areas
Zanzibar Tourism Policy, 2004	
Zanzibar Fisheries Act, 2010	Provides a framework for the management and development of fisheries in the internal and territorial waters of Zanzibar. It contains provisions for "Conservation Measures" and enables the establishment of the Marine Conservation Unit with the responsibility of coordination towards sustainable management of controlled areas established under the Act. It also covers a number of fisheries prohibitions, powers of enforcement officers and guidance for processing of offenses.
Zanzibar Vision 2020 (2011)	Zanzibar Vision 2020 is a long term socio-economic development goal followed by the operational middle term plan known as Zanzibar Poverty Reduction Plan (ZPRP) in 2002. While the vision 2020 overall objective is to eradicate abject poverty, the ZPRP was a step towards addressing the concerns of the vision. The ZPRP interventions aimed at generating higher economic growth and improved delivery of services.
Zanzibar Environmental Policy, 2013	It ensures that proper environmental management accompanies economic development in order to preserve Zanzibar's natural heritage
Marine Conservation Unit Regulations, 2014	Provides the tools for the management of marine protected areas in Zanzibar
Fisheries Policy, 2016 (?)	The policy aims at the improvement of the following aspects: fisheries governance framework; fisheries management services; formalization and professionalization of fishing and related activities; management of inshore fisheries; promotion of inshore fisheries; promotion of artisanal fisheries further offshore; better integration of offshore industrial fishing fleets in the Zanzibari economy; sustainable aquaculture development; and value addition and pro-poor growth in the post-harvest sector.
Zanzibar Environmental Management for Sustainable Development Act, 2015 (revising the 1996 Act)	It aims at improving the long-term management, conservation and sustainable use of Zanzibar's marine ecosystems and resources and provides regulatory measures that can be enforced by the institution responsible for the environment. The Act strongly promotes integrated coastal area management, community involvement, and harmonisation among sectors.
Zanzibar strategy for growth and reduction of poverty ZSGRP III, (MKUZA III), 2017	A multi-year strategy that outlines the country's ambitions to develop economically and socially over the period 2016 -2020
Zanzibar Blue Economy Policy, 2020	It aims at promoting sustainable economic growth, environmental stewardship and improved livelihoods through the sustainable utilisation of the sea and other blue resources. It stresses the need for the optimization of the commercialization of deep-sea fishing sector and development of aquaculture, while maintaining support for artisanal fisheries.
Zanzibar Vision 2050 (2020)	For a structural transformation of Zanzibar's productive capabilities through economic modernisation and diversification with a focus on export-oriented and technology-driven development, translating national comparative advantage to competitive advantage, characterised by openness, macroeconomic stability, high saving and investment rates, market allocation, pragmatic leadership and strong private sector engagement as growth enablers.
Fisheries Master Plan	Zanzibar has developed a 15-year masterplan (2019-2033) (BICO and ZUMOS, 2018) to guide the strategic development of the sector within the frame of the Fisheries Policy. It aims to improve both the management and sustainable development of the resources in Zanzibar waters to optimise economic growth, employment opportunities, food security and safeguard the marine environment. It is committed to implementing transformative initiatives that places people at the centre and guides the actions and roles of all fisheries sector actors.

APPENDIX ECONOMIC GROWTH SECTION 3.1 (MLT and ZNZ sub-chains)

Anchovy-like MLT Final (20/07/22)

Functional analysis



Actor categories

Table: list of operations and corresponding acronyms in the anchovy sub-chain in Mainland
Sources : Nov. data, Arianna's data + adjustments with literature and official reports

Category	Acronym	Explanation	Description	Commodities
Primary production	PPSAM	Primary Purse Seine Anchovy Mainland	Fishing and targeting anchovies with a purse seine gears (or ringnet) and associated means. Equipment: boat, gears, engine, accessories + tel,wages (crew); sharing system cf tables, Taxes. District taxes, licensing costs, and levies. No auction. No subsidy – typical case: 100t/y, 16 crew, one skipper	Fresh anchovy= Fresh A → Bucket of fresh anchovy Outputs: FA in kg or buckets, unit price : 880 TZS/kg but also bycatch. 5% not considered
Primary trade	CPLAM	"Commerce" Primary Anchovy Mainland	Buys from PPSAM at the auctions, Sales of fresh anchovies from the fishers to the secondary traders CSLAM, local market as well as local retailers, Buckets, telephone, Carrier's wages, Licensing costs, levies Transport from landing to urban (FFM)	Fresh A. Bucket of fresh anchovy 25% of landed anchovies 1% loss – buys at 880, sells at 1333
Transformation 1	TDAM	Transformation Drying Anchovy Mainland	Annual volume purchased of 20 t. Buys from PPSAM, Drying – stockage and packaging of fresh anchovies (mostly on soil) Sales of dried anchovies to local and export (CRDAM and CEDAM), + dust to feeds (UFAM), Buckets, tarpaulin, Drier's wages, Carriers, counters, Land Packer's wage, transport sometimes 42 % yield, 12% dust.	Bucket of fresh anchovy -Fresh A →Bucket of dried anchovy for export and local, dust for feed → big bags "Dried A" Buys at 880, sells at 4700 (Dried A) and 1091 (Dust)
	50% of the vol	Transformation Boiling Drying Anchovy Mainland	Boiling and drying of fresh anchovies, same inputs as before + 3 % loss, Buckets, pan, salt, firewood, Boiler's wages in addition	Bucket of fresh anchovy →Bucket of boiled anchovy → big bags Other price ?
Secondary trade	CEDAM	"Commerce" Export Dried Anchovy Mainland	Buys from TDAM, agent, Sales of dried anchovy big bags to Congolese, Dried A Ex, UCDAM, Truckers services, Licensing, levies, telephone -> up to the border – corrected estimation of 34% (data from Igenwe et al. 2022)	Big bags (27 buckets), Buys at 4700, sells at 6900
	CRDAM	"Commerce" Retail Dried Anchovy Local Mainland	Buys from TDAM, Sales of dried anchovy to retailers local market, ULDAM	Big bags (30 buckets) ? Buys at 4125, sells at 6500
	CSLAM	"Commerce" Secondary Fresh local Anchovy Mainland	Buys from CPLAM, fresh anchovies, mostly in FFM, sells at retailers/friers, TRLAM, ice, rental of stall, taxes, levies, services, 5 % loss	Unit ? Buys at 1333, sells at 1900
Transformation 2	TRLAM	Transformation Retail Local Anchovy Mainland	Buys from CSLAM, and fries, mostly women, 58-60 % loss	Buys at 1900, sells at 6667
End users	UCDAM	User dried Anchovy Congolese Mainland	Purchase from agent, traders in Tanzania, and use of dried anchovy big bags to Congolese consumers, truckers services, levies	Big bags (27 buckets) – Dried A Ex Buys at 6900
	UFAM	User dried Anchovy Feed Mainland	Purchase and use of dried anchovy dust bags to animal feed industry, truckers services, levies	Bags, buys at 1091 TZS/kg - Dust
	ULDAM	User dried Anchovy Local Mainland	Purchase of dried anchovy to local market, truckers services, levies	Big bags (30 buckets)? Buys at 6500
	UiLAM	User Fresh Anchovy Local Mainland	Purchase fried anchovy to local market, Baskets, wrapping papers,.	Buys at 6667

FFM data analysis:2019 volumes and price (primary data from Y Mgawe)
Small pelagic represent the most significant volume and value in the FFM,
Volume of 4892 t (anchovy and mix anchovy) , value of 7881 MTZS, price in of 1611 TZS/kg
Price in: 2 types of small → average 1611
Price out: as fried, 6667 TSH/kg fried according to WB to check if possible.
A very high rate of frying who are employed by the secondary traders based in the FFM as a service paid.
Feb calc anticipated about 40 % of anchovy (6000 t) for local market, which means that the FFM is capturing most of this volume, the remaining is probably consumed around the landing areas. This appears quite valid with publications.
→ Np corrections are made on the price in (1333 and the price out of the FFM, the price 1611 established in the FFM auction is very much within this range).

On the value chain adjustments:

Changes could be introduced, related to fresh/fried anchovy chain which represents a significant part of local consumption of daggaa. The situation is mostly now reflected by what is occurring in the FFM. The friers are providing a service to the secondary traders. These Frier actors are covering their operational costs, mainly composed by the consumables: oil, firewood now replaced by gas, the place rent to the Local Government in the FFM. They may also pay an employee. The secondary traders will get the fried anchovy from them and sell it to retailers. We used in our data the WB data, that are clearly issued from the FFM, and describes a situation where friers are independent players, parts of the value chain as they buy the fresh anchovies and fry them. In this WB study, the secondary traders in the FFM are just trading, with no processing.
We decided to keep the WB description as this disaggregation allows a better identification of the frier role in this anchovy sub-chain. Overall, the price out the FFM and the end user price are confirmed, and integrating this possibility of independent or service provider friers.

Ref for fuel price:

https://www.ewura.go.tz/wp-content/uploads/2021/03/Annual-Report-for-the-Year-ended-3oth-June-2020.pdf

Economic analysis

Operational costs of actors (examples)

(primary data, November 2021 and Jan. 2022 + (Sofreco, 2018) + Ibengwe et al. (2022)

Purse seiners

	purse seiners	cost per trip at sea	nb of trips/month	Nb of months	nb of days/y			cost/kg		WB D1	WB D2	Mafia 2016	Ibengwe
PPSAM	Kilwinje, Kilwa, n	closed to D1 type of Sofreco's report + arianna	15-20	12	180	too high							
crew 16		basis	24	buckets/d	180	reality							
	catch in buckets	100 in good season 20 in low, 5 months low, 23 as WB fig D1	555	trip catch kg	3456		Average of 100 buckets (23 kg fresh anchovies/bucket) per day Arianna Feb 2022)						
	FA kg	if 23 kg FA/bucket	100		99900	tot catch/y							21.73913043
	bucket price	20000 low 30000 high, 25000 average			25000								
	Catch in kg												
	Income in TZS				86400000			865		833	889	957	880
			per trip		per year								
		catch trip	0.555	TZS	100	t							
		income/trip	488400	TZS	87.9	MTZS							
			cost for a trip at sea		per year	%							
	Net income in TZS				87.9	100							
	Landing fees												
	variable costs (co	covered by the min sum to leave for a trip	270000		48.6	55.3							
	fuel	100 l at 2200	220000	18000	39.6								
	bait	no											
	ice	no											
	accessories	lamps, etc ..	50000		9.0								
	profit to be shared	in this case, before fixed costs			39.3	44.7							
	fixed costs				6.4	7.3							
	repairs	engine			0.3	0.3							
	maintainance	boat			2.4	2.7							
	accessories	generator, lamps..			3.2	3.6							
	licensing	per fisher (he pays): 25000/y -- boat: 115000 -- boat owner: 130000/y			0.6	0.7							
Total inputs (intermediate costs)					55.0	62.6							
Gross added value		Net income -variable costs - fixed costs			32.9	37.4							
	Wages												
	crew	16 on lead boat, to be shared: 50% crew-- 50%boat owner		1.2285	19.7	22.4							
	skipper		1 hypo 25 owner part		4.9								
	lamp holder		hypo 15% owner part		2.9								
	boat owner part	3 boats, owner at 100%, 90% anchovy			11.8	13.4							
	Capital depreciation				2.8	3.2							
	depreciation engine				0.6	0.7							
	depreciation boat				0.7	0.8							
	depreciation gears				1.5	1.7							
				per month				in USD/month					
	profit/fisher/y			0.1	1.2	1.4		45					
	profit/boat owner/boat/y		owner pays for fixed costs	0.2	2.6	2.9		92					
	financial fees		end depr										
	final owner profit		AFA	0.2	2.6	2.9		0					
			Cost Per unit	Nb	Total cost	Life span (y)	maintainanc	depreciation/y					
								per year			depreciation/t/y		investment/t
	boat												
	lead	wood, >10m, sold half after 6 years or keptr up to 50 years	10500000	1	10500000	15	2400000	700000	based on 15 years		7007		105105
	dinghi		47500	3	142500								
	engine	yamaha 40 HP	7000000	1	7000000	11	250000	636363.6364	if good maintainance		6370		70070
	gears	1 big N°1	750000	1	750000	2.5		375000	3650000		1460000		36537
		n°2	250000	10	2500000	2.5		1250000					
		n°3	50000	8	400000	2.5		200000					
	energy						depreciation/trip		cost per year				
	generator	one for lead boat 2KW	750000	1	750000	3-4 months	8333	2000000	2250000				
		1 KW, 1 per dighni	45000	3	135000	3-4 months	1500	360000	405000				
	lamps	in each dighni	55000	3	165000	3-4 months	1833	440000	495000				
				investment	22342500								

Processors:

											total number of days/month		20
TDAM	operating costs for a production 100 buckets of DA/day	nb	purchasing price/unit		one typical day		tot /y t	tot/y MTZS	need/year	price/kg	total number of days/year		132
20t/y purchased	anchovy purchasing costs FA	880	TZS/kg FA		152	kg	20.0	17.6		0.11616	total nb per 3 months		60
8.4	t sales DA Congo	4700	TZS kg DA		63.7	kg	8.4	39.5	turnover	0.132	total nb per 6 months		120
	sales for dust	1091	TZS kg DA		8.7	kg	1.1	1.3		0.132			
gross margin								23.2					
		cost per year					boiling and dry	drying				accessories	
	buckets for landing 2 sets, one day at 400-600 kg FA purchased, 21/d	13.18	3500	one year			0.05	0.05				0.38	
	buckets for processing, 2 sets, 100 buckets/d max	100	1000	one year			0.10	0.10	100				
	tarpaulin cover	2	30000	3 to 4 months	one for 100 buckets use		0.06	0.06	30				
	boiler pan	2	70000	6 months	24 buckets/pan, 20 min (ZZB)		0.14		0.11	75%			
	salt	102	12500		bag 25 kg for 10-20 buckets,15		1.27		0.96				
	firewook	31	45000		per truck, one for 50 buckets		1.38		1.03				
	export bag	55	1200		27 to 30 buckets/bag		0.07	0.07					
											Storage 3 millions invest 10 years		
operational costs							3.06	0.27					
									75% boil and dry		labour costs TZS/kg		
	carrier wage	870	2000		2000/bucket		1.74	1.74					
	counter on board	870	1000		1000/bucket		0.87	0.87			1453.867399		
	drier's wage	4620	1000		1000/bucket		4.62	4.62					
	boiler's wage	4620	1000		1000/bucket		4.62		3.465		3465		
	packer's wage	55	7000		7000/bag		0.38	0.38					
total wages							12.23	7.61					
	taxes						0.1	0.1					
	storage facility	5	3000000	10 years?	investment of 3 millions		0.01	0.01	average storage of ? 5 day		cost per day	2273	
	licensing cost	30000	hypo				0.03	0.03					
											Production cost per kg :		
total costs							15	8			1831.190		
net income							8	15		in MTZS			
							0.65	1.27		in MTZS/m			
							282.11	550.64		in USD/m	ok WB and Ibengwe		

Friers (Sofreco, 2018)

Retailer (frying) Profitability

Table 13: Simplified Profitability Analysis of dagaa retailer (fried)

Characteristics	Catches per month (Kg)		Costs		
Retailer based in Dar-es-Salaam who fries dagaa	Dagaa		Labour	0	SGP (inc. Auto-consump-tion)
	average (fried	220	self-employed, pays on SGP		
			Services/Kg prawns		
	Price (fried)	6,667	various	300	
	By-catch (sardines)		Input/Kg		
	average		firewwod	275.0	
	Max		plastic bag		
	Price		Taxes/Kg		
	Others		District taxes	9.1	
	Min		Licenses		
	Max		Transport/Kg	80.0	
	Price		Repairs/Kg		
			Financial/Kg		
			Losses/Kg	2,700.00	
			Raw material	1900	
	Av. Income per month		**Total cost**	**Cost / Kg**	
		1,466,667	1,158,100	5,264	**1,403**

+ Primary data (from Yahya Mgawe, Spring 2022)

Secondary trader (Sofreco, 2018) + primary data

Secondary trader profitability

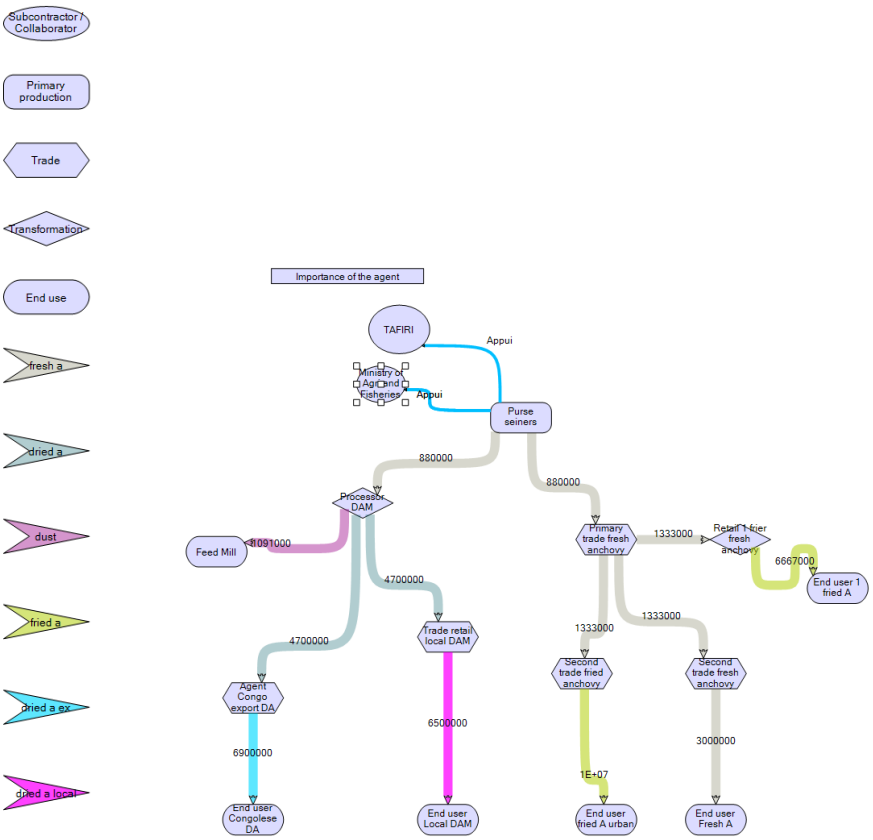
Table 12:Simplified Profitability Analysis of fresh dagaa secondary trader

Characteristics	Catches per month (Kg)		Costs		
Trader based at the Ferry Market, buys at auction dagaa that come Bagamoyo, Kunduchi, sales wholesale	Dagaa		Labour	37	SGP (inc. Auto-consump-tion)
	average	5,160	self-employed, pays on SGP		
			Services/Kg prawns		
	Price	1,900	stall renting	4	
	By-catch (sardines)		Input/Kg		
	average		ice	77.5	
	Max		plastic bag	8.4	
	Price		Taxes/Kg		
	Others		District taxes	0.0	
	Min		Licenses	0.36	
	Max		Transport/Kg	0.0	
	Price		Repairs/Kg		
			Financial/Kg		
			Losses/Kg	62.00	
			Raw material	1,333	
	Av. Income per month		**Total cost**	**Cost / Kg**	
		9,804,000	7,856,881	1,523	**377**

Export trader (cf Mayala, 2018) + primary data (Nov. 2021)

Economic analysis

Pricing-actor and volume flows 15/06/22



(AFA figures)

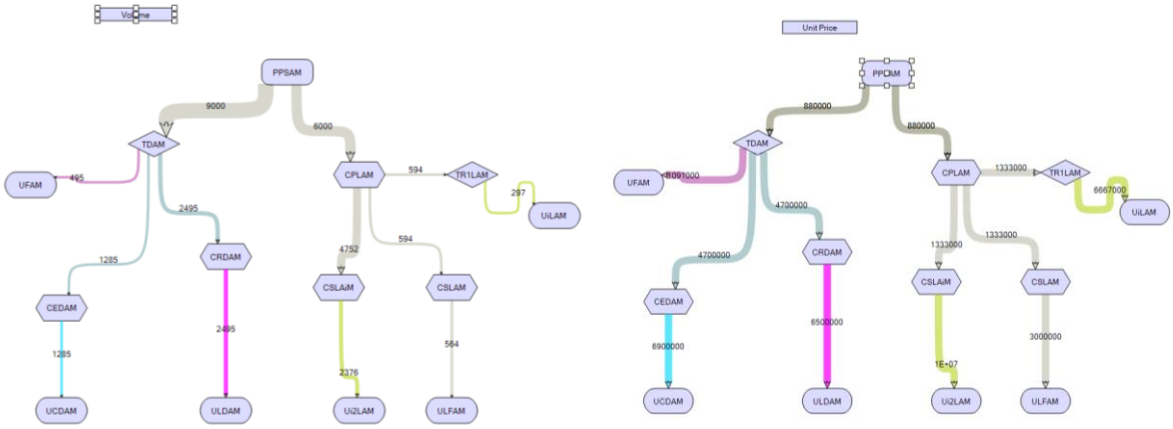
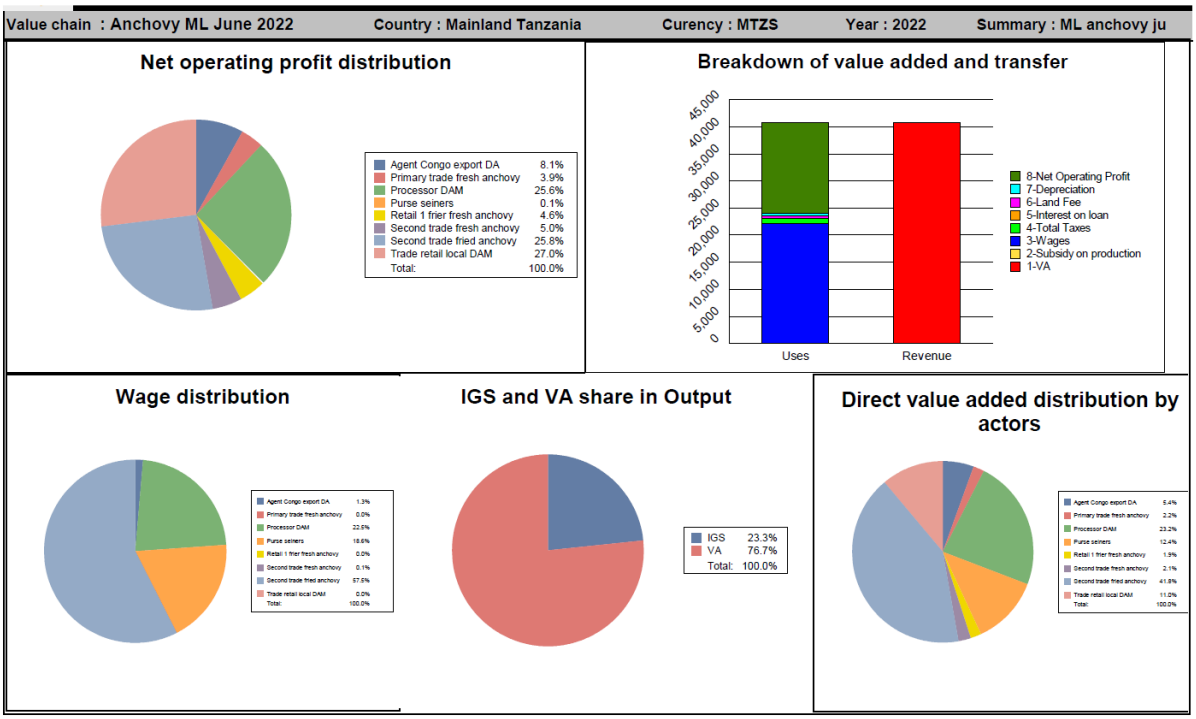


Figure : Flow chart for anchovy sub-chain in Mainland – pricing (17/02/22) → no change 07/04/22→ change in 15/06/22

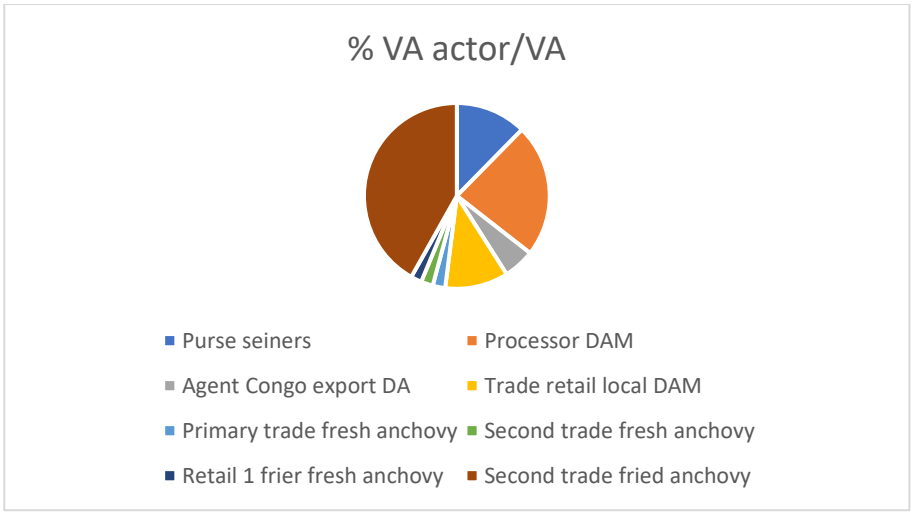
Profitability of the actors

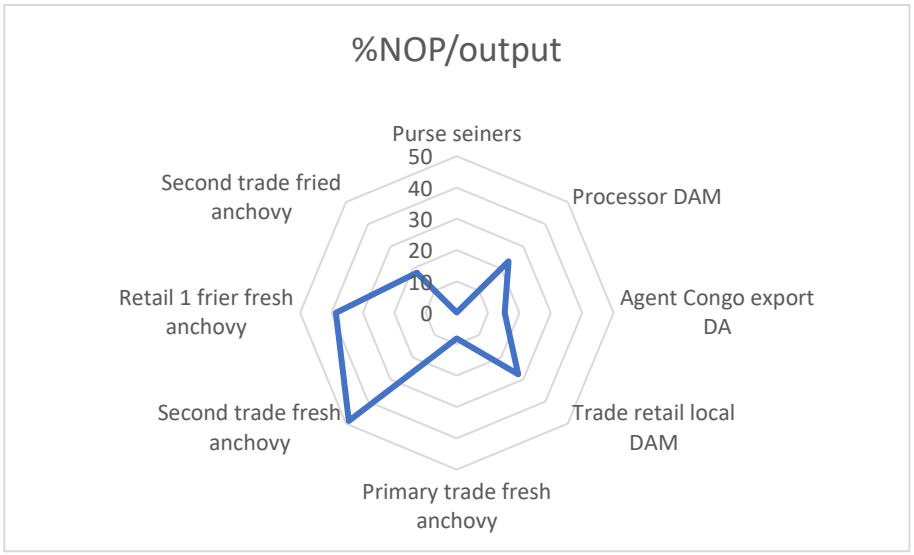
Indicators by Actors and estimations of number of actors													
Actor	Output	Subsidy	IGS	VA	Wages	Tax	Interest on l	Land fee	Depreciatior	Net Operatir	Volume Inpu	Annual Capa	Nb of Actors
Purse seiners	13 200	0	8 167	5 033	4 118	97	0	390	415	12	15 000.00	100.00	150
Processor DAM	18 306	0	8 865	9 441	4 986	58	0	0	135	4 262	9 000.00	20.00	450
Agent Congo export	8 868	0	6 657	2 210	281	575	0	0	0	1 355	1 285.00	133.00	10
Trade retail local DA	16 216	0	11 726	4 491	0	0	0	0	0	4 491	2 495.00	1.00	2 495
Primary trade fresh	7 918	0	7 033	885	0	240	0	0	0	645	6 000.00	20.00	300
Second trade fresh	1 693	0	845	848	22	0	0	0	0	825	594.00	20.00	30
Retail 1 frier fresh a	1 980	0	1 211	770	0	5	0	0	0	764	594.00	6.00	99
Second trade fried a	23 760	0	6 726	17 034	12 735	5	0	0	0	4 294	4 752.00	54.00	88
VALUE CHAIN	53 057	0	12 346	40 711	22 143	981	0	390	550	28 994	----------	3 621	

Table : Detail accounts for actors (AFA output)



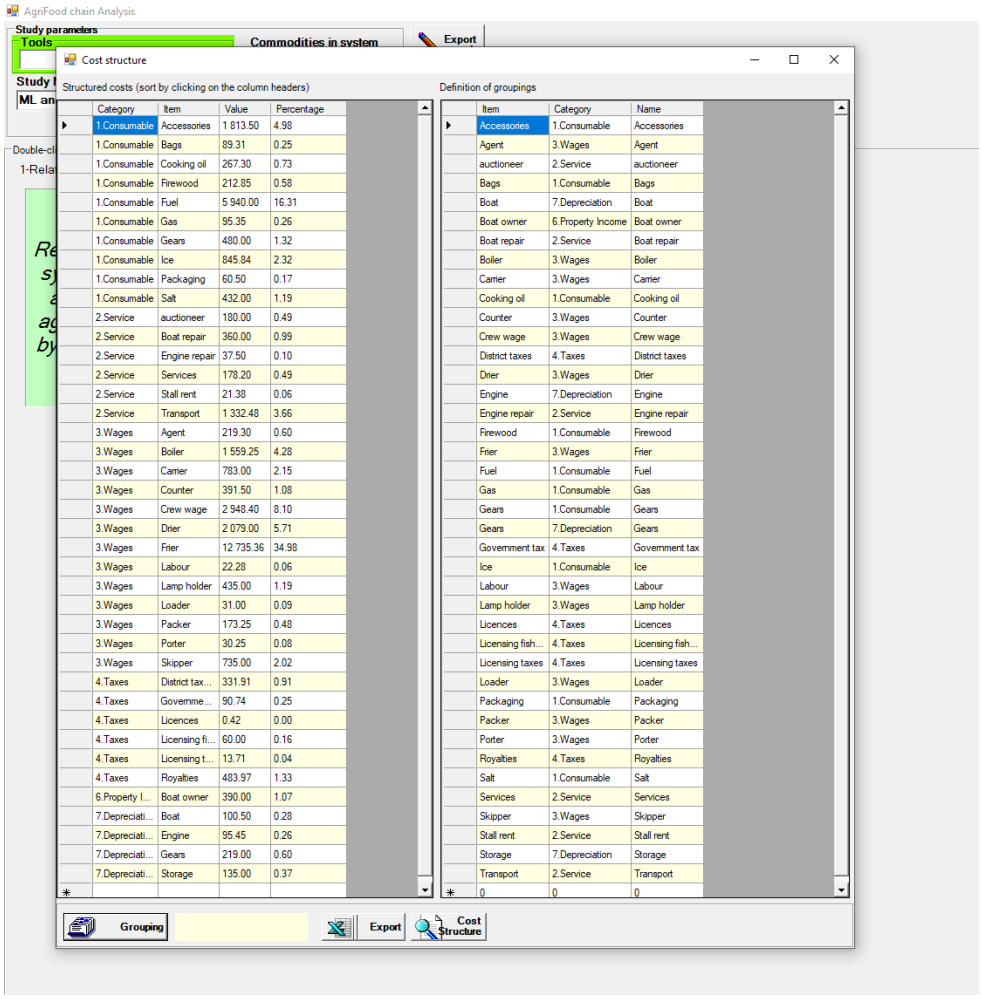
From AFA, consolidated.





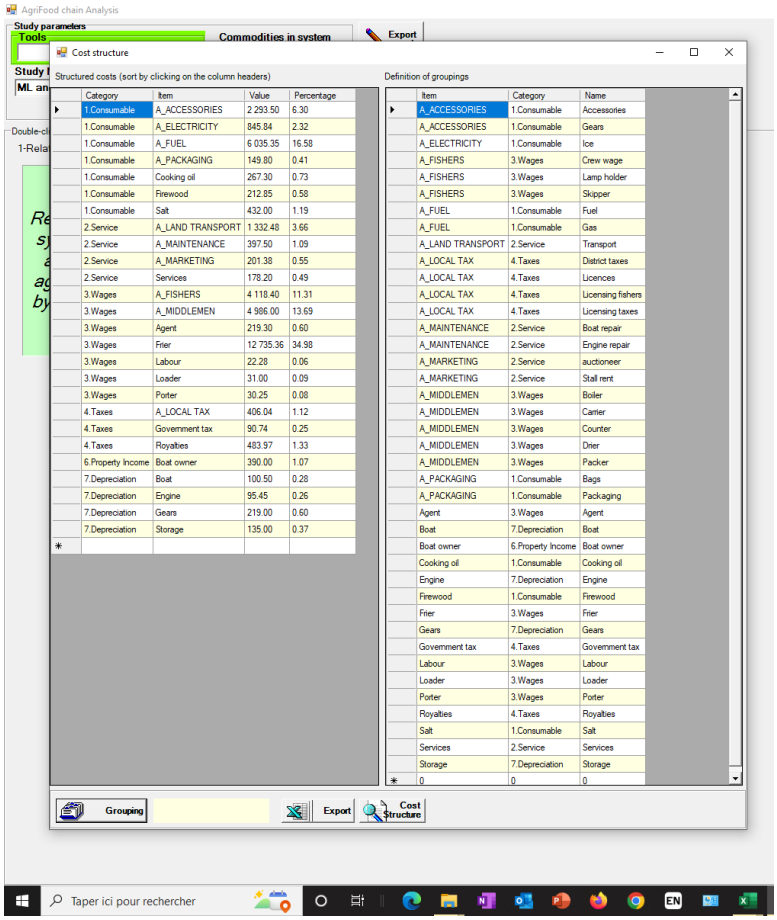
Cost structures

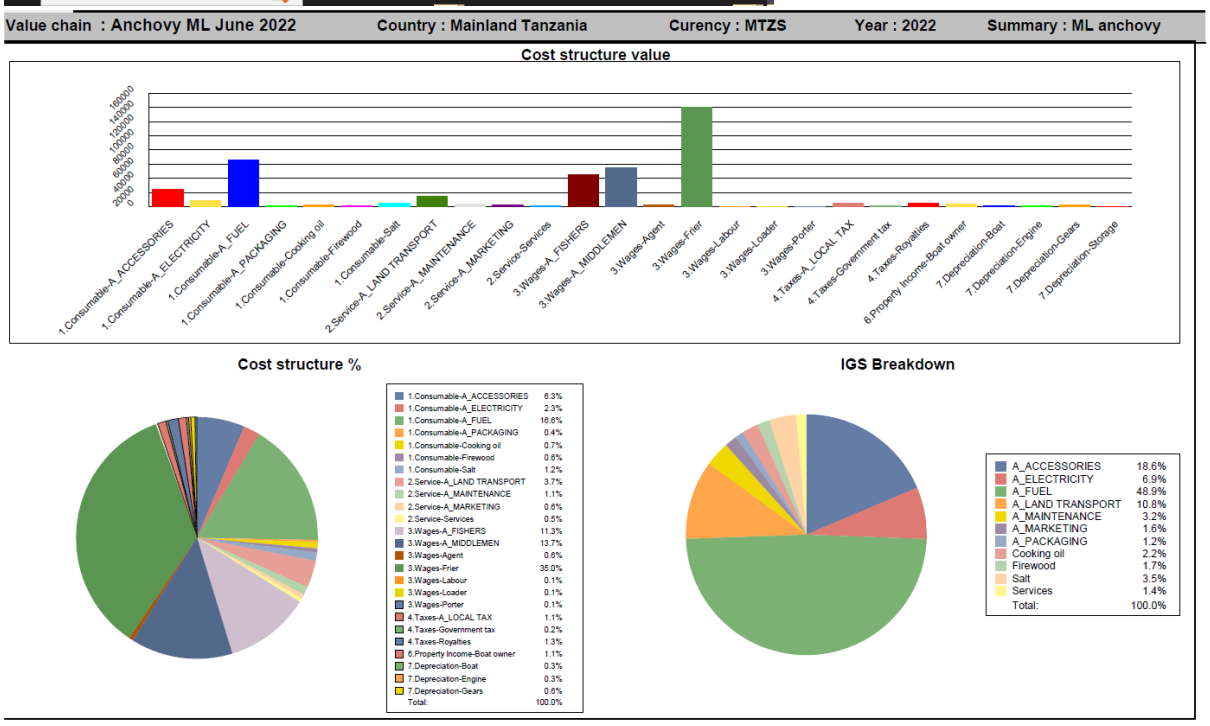
Ungrouped



Category	Item	Value	Percentage
1.Consumable	Accessories	1 813.50	4.98
1.Consumable	Bags	89.31	0.25
1.Consumable	Cooking oil	267.30	0.73
1.Consumable	Firewood	212.85	0.58
1.Consumable	Fuel	5 940.00	16.31
1.Consumable	Gas	95.35	0.26
1.Consumable	Gears	480.00	1.32
1.Consumable	Ice	845.84	2.32
1.Consumable	Packaging	60.50	0.17
1.Consumable	Salt	432.00	1.19
2.Service	auctioneer	180.00	0.49
2.Service	Boat repair	360.00	0.99
2.Service	Engine repair	37.50	0.10
2.Service	Services	178.20	0.49
2.Service	Stall rent	21.38	0.06
2.Service	Transport	1 332.48	3.66
3.Wages	Agent	219.30	0.60
3.Wages	Boiler	1 559.25	4.28
3.Wages	Carrier	783.00	2.15
3.Wages	Counter	391.50	1.08
3.Wages	Crew wage	2 948.40	8.10
3.Wages	Drier	2 079.00	5.71
3.Wages	Frier	12 735.36	34.98
3.Wages	Labour	22.28	0.06
3.Wages	Lamp holder	435.00	1.19
3.Wages	Loader	31.00	0.09
3.Wages	Packer	173.25	0.48
3.Wages	Porter	30.25	0.08
3.Wages	Skipper	735.00	2.02
4.Taxes	District tax...	331.91	0.91
4.Taxes	Governme...	90.74	0.25
4.Taxes	Licences	0.42	0.00
4.Taxes	Licensing fi...	60.00	0.16
4.Taxes	Licensing t...	13.71	0.04
4.Taxes	Royalties	483.97	1.33
6.Property I...	Boat owner	390.00	1.07
7.Depreciati...	Boat	100.50	0.28
7.Depreciati...	Engine	95.45	0.26
7.Depreciati...	Gears	219.00	0.60
7.Depreciati...	Storage	135.00	0.37

Item	Category	Name
Accessories	1.Consumable	Accessories
Agent	3.Wages	Agent
auctioneer	2.Service	auctioneer
Bags	1.Consumable	Bags
Boat	7.Depreciation	Boat
Boat owner	6.Property Income	Boat owner
Boat repair	2.Service	Boat repair
Boiler	3.Wages	Boiler
Carrier	3.Wages	Carrier
Cooking oil	1.Consumable	Cooking oil
Counter	3.Wages	Counter
Crew wage	3.Wages	Crew wage
District taxes	4.Taxes	District taxes
Drier	3.Wages	Drier
Engine	7.Depreciation	Engine
Engine repair	2.Service	Engine repair
Firewood	1.Consumable	Firewood
Frier	3.Wages	Frier
Fuel	1.Consumable	Fuel
Gas	1.Consumable	Gas
Gears	1.Consumable	Gears
Gears	7.Depreciation	Gears
Government tax	4.Taxes	Government tax
Ice	1.Consumable	Ice
Labour	3.Wages	Labour
Lamp holder	3.Wages	Lamp holder
Licences	4.Taxes	Licences
Licensing fish...	4.Taxes	Licensing fish...
Licensing taxes	4.Taxes	Licensing taxes
Loader	3.Wages	Loader
Packaging	1.Consumable	Packaging
Packer	3.Wages	Packer
Porter	3.Wages	Porter
Royalties	4.Taxes	Royalties
Salt	1.Consumable	Salt
Services	2.Service	Services
Skipper	3.Wages	Skipper
Stall rent	2.Service	Stall rent
Storage	7.Depreciation	Storage
Transport	2.Service	Transport
0	0	0





→ grouping only when >4-5%:

Consumables:

A_ACCESSORIES: mainly accessories for fishing (accessories and gears)→ 6.3%

A_FUEL: linked to fishing (16.6%)

A_ELECTRICITY: 2.32%

Services:

A_TRANSPORT: transport, mostly trucks, no plane 3.6%

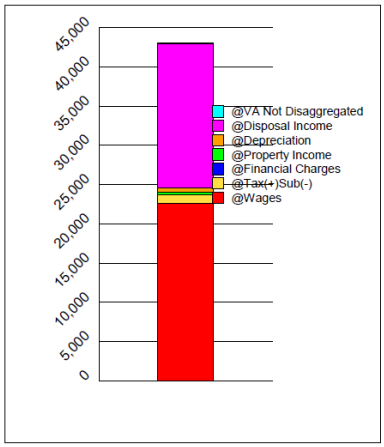
A_MARKETING: including stall rent and auctions. But low, <1%
Wages
A_MIDDLEMEN: 16.4%
A_EXPORT
A_FISHER: 11.3%
Taxes
A_LOCAL TAX: 1.1%
royalties 1.3%
Depr:

Calculations of effects:

Direct and indirect effects (MTZS)

	Direct effects	Indirect effects	Total effects
Imports	0	7 460	7 460
IC not disaggregated		2 581	2 581
Value added			
Wages	22 143	408	22 551
Taxes	*981*		
Subsidy	*0*		
Tax (+) Sub (-)	981	105	1 086
Interest on loan	0	0	0
Land Fee	390	0	390
Depreciation	550	0	550
Net Operating Profit	16 648	1 666	18 314
VA not disag.		126	126
VA Total	40 711	2 305	43 016

Total Value Added distribution (MTZS)



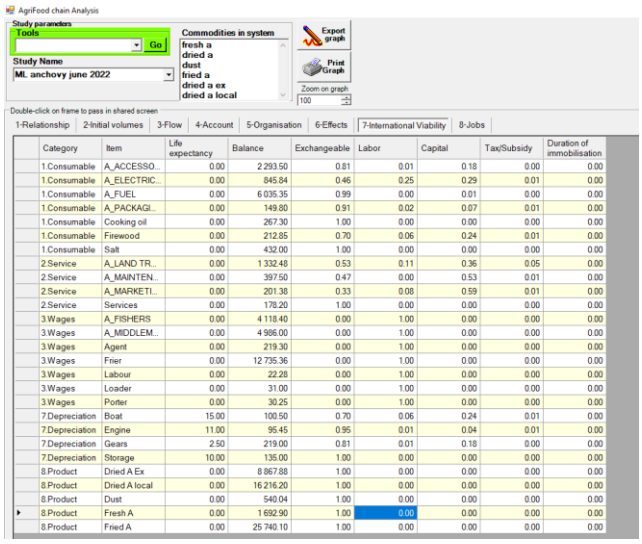
Macro-économic effects indicators

VC VAT/GDP	0.0%	
VC VAT/Vc Output	81.1%	with Vc Output 53,057.12 MTZS
VC VAT/Agricutural GDP	0.1%	
VC Tot. Import/ N. Imports	0.0%	
VC Export/Total Export	0.0%	
VC Trade Balance	1 407.6	
VC Trade Balance/ N Imports	0.0%	
VC T. Net Transfer/State budget	0.0%	
VC T. Wages/N.Wages	0.3%	
VC Tot. Disposal Income/Nat. Incom	0.0%	

Reference

Agricultural GDP	37 192 537 MTZS
Disposal income	115 340 321 MTZS
GDP	139 641 854 MTZS
National Export	22 394 010 MTZS
National Import	23 713 761 MTZS
State budget	23 502 700 MTZS
Value Chain Export	8 868 MTZS
Wages	7 006 311 MTZS

Calcul of international (19/06/22 update)



Category	Item	Life expectancy	Balance	Exchangeable	Labor	Capital	Tax/Subsidy	Duration of immobilisation
1.Consumable	A_ACCESSO...	0.00	2 293.50	0.81	0.01	0.18	0.00	0.00
1.Consumable	A_ELECTRIC...	0.00	845.84	0.46	0.25	0.29	0.01	0.00
1.Consumable	A_FUEL	0.00	6 035.35	0.99	0.00	0.01	0.00	0.00
1.Consumable	A_PACKAGI...	0.00	149.80	0.91	0.02	0.07	0.01	0.00
1.Consumable	Cooking oil	0.00	267.30	1.00	0.00	0.00	0.00	0.00
1.Consumable	Firewood	0.00	212.85	0.70	0.06	0.24	0.01	0.00
1.Consumable	Salt	0.00	432.00	1.00	0.00	0.00	0.00	0.00
2.Service	A_LAND TR...	0.00	1 332.48	0.53	0.11	0.36	0.05	0.00
2.Service	A_MAINTEN...	0.00	397.50	0.47	0.00	0.53	0.01	0.00
2.Service	A_MARKETI...	0.00	201.38	0.33	0.08	0.59	0.01	0.00
2.Service	Services	0.00	178.20	1.00	0.00	0.00	0.00	0.00
3.Wages	A_FISHERS	0.00	4 118.40	0.00	1.00	0.00	0.00	0.00
3.Wages	A_MIDDLEM...	0.00	4 986.00	0.00	1.00	0.00	0.00	0.00
3.Wages	Agent	0.00	219.30	0.00	1.00	0.00	0.00	0.00
3.Wages	Frier	0.00	12 735.36	0.00	1.00	0.00	0.00	0.00
3.Wages	Labour	0.00	22.28	0.00	1.00	0.00	0.00	0.00
3.Wages	Loader	0.00	31.00	0.00	1.00	0.00	0.00	0.00
3.Wages	Porter	0.00	30.25	0.00	1.00	0.00	0.00	0.00
7.Depreciation	Boat	15.00	100.50	0.70	0.06	0.24	0.01	0.00
7.Depreciation	Engine	11.00	95.45	0.95	0.01	0.04	0.01	0.00
7.Depreciation	Gears	2.50	219.00	0.81	0.01	0.18	0.00	0.00
7.Depreciation	Storage	10.00	135.00	1.00	0.00	0.00	0.00	0.00
8.Product	Dried A Ex	0.00	8 867.88	1.00	0.00	0.00	0.00	0.00
8.Product	Dried A local	0.00	16 216.20	1.00	0.00	0.00	0.00	0.00
8.Product	Dust	0.00	540.04	1.00	0.00	0.00	0.00	0.00
8.Product	Fresh A	0.00	1 692.90	1.00	0.00	0.00	0.00	0.00
8.Product	Fried A	0.00	25 740.10	1.00	0.00	0.00	0.00	0.00

Category	Item	Life time	Balance	Tradable	Labor	Capital	+Txv / -Sub	Revolv	OutM	InpM	LabM	CapM	OutP	InpP	LabP	CapP
Intermediate Totals								0.00	53 057	10 818	22 565	2 047	53 057	10 773	22 565	2 047

TRANSFERS

	Tax/Sub on tradable		Other transfer		Interest on lease	Total
	Output	Input	Tax on Op.	Subs. on Op.		
Prod +Sub/-Tax Output	0					
Prod -Sub/-Tax Input		0				
Tax on Operation			981			
Subs on Operation				0		
Financial Charge					0	
Total Transfert Market	0	0	981	0	0	981

VALUE AT PARITY PRICES

	Tradable		Domestics Factors		Transfers	Profit
	Output	Input	Wage	Capital		
Market price	53 057	10 818	22 565	2 047	981	16 648
Parity price	53 057	10 773	22 565	2 047		17 673
Divergence	0	44	0	0	981	-1 025

ACCRONYMS

+Txv / -Sub Ad Valorem Taxe or Subisidy on Tradable

Term	Does not apply
OutM	Output value at Market price
InpM	Intermediate Good and Services value at Market Price
LabM	Labor value at Market price
CapM	Capital value at Market Price
OutP	Output value at Parity Price
InpP	Intermediate Good and Services value at Parity Price
LabP	Labor value at Parity Price
CapP	Capital value at Parity Price

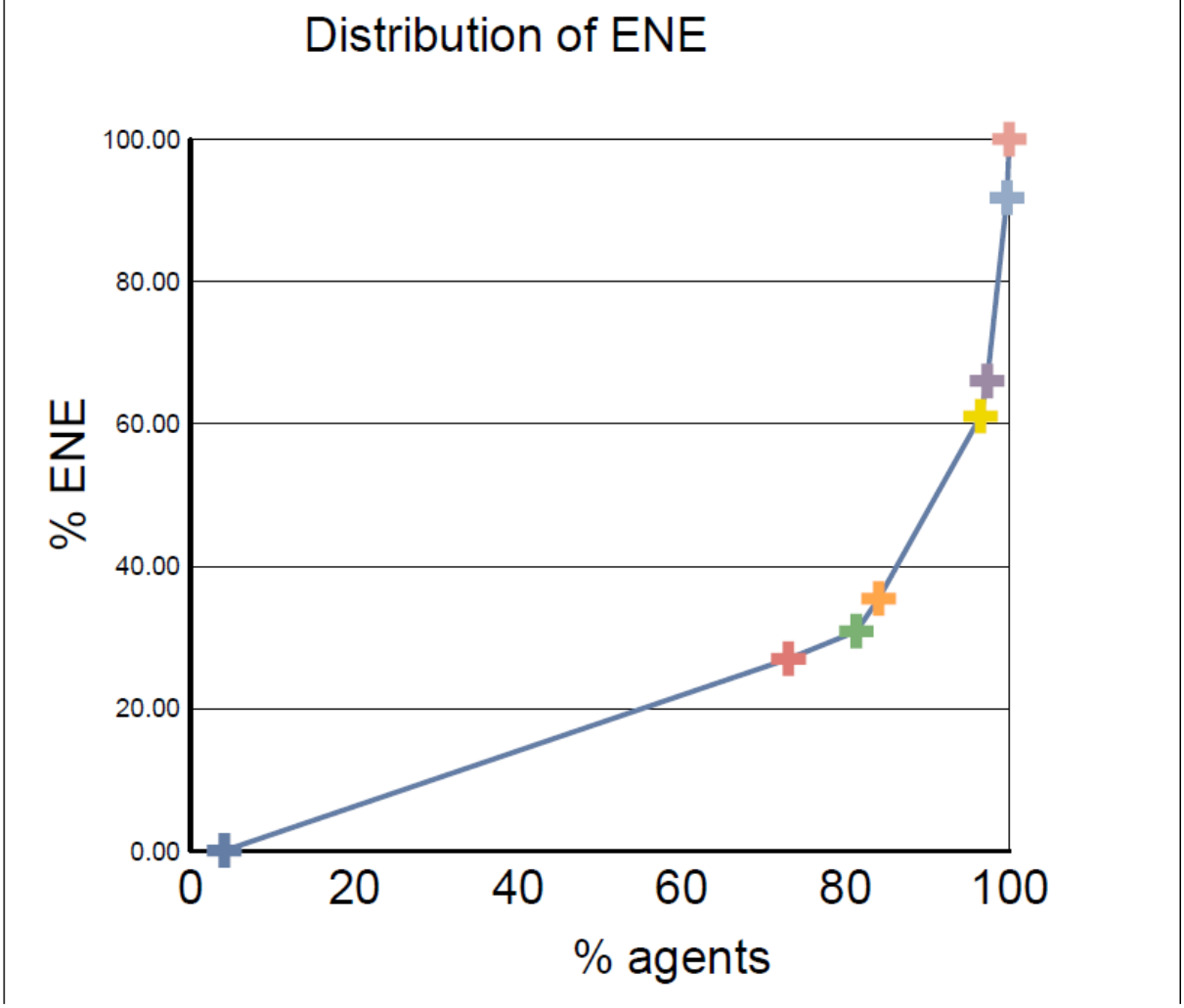
INDICATORS

Dometic Ressource Cost	0.53
Nominal Protection Coefficient	1.00
Effective Protection Coefficient	1.00
Equivalent producer subsidy	-0.02

Gini coeff and HHI 190622

Gini coefficient of the Anchovy ML value chain: 0.5734

Gini coefficient of the value chain: 0.5734
0: Fair distribution 1: Totally inegalitarian



Compared to Ibengwe et al. 2022

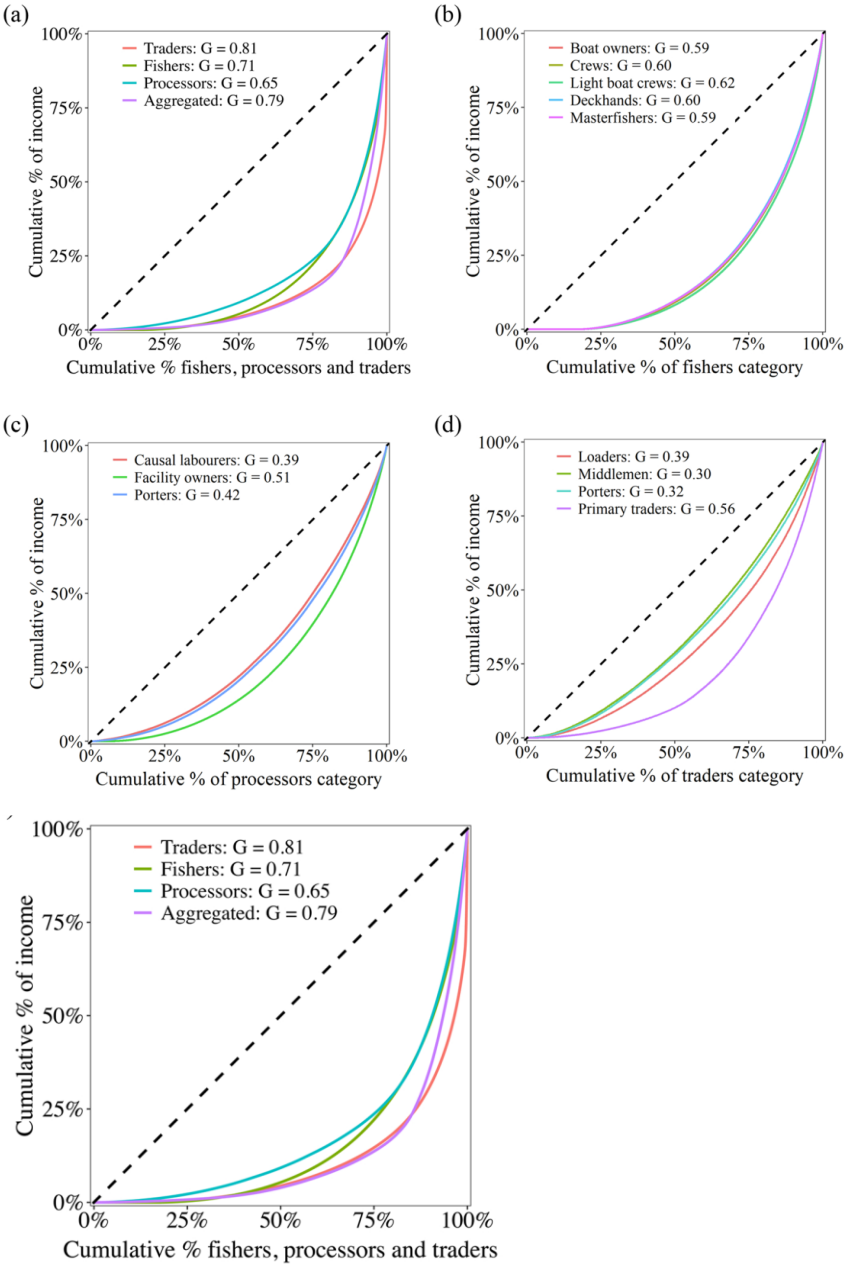
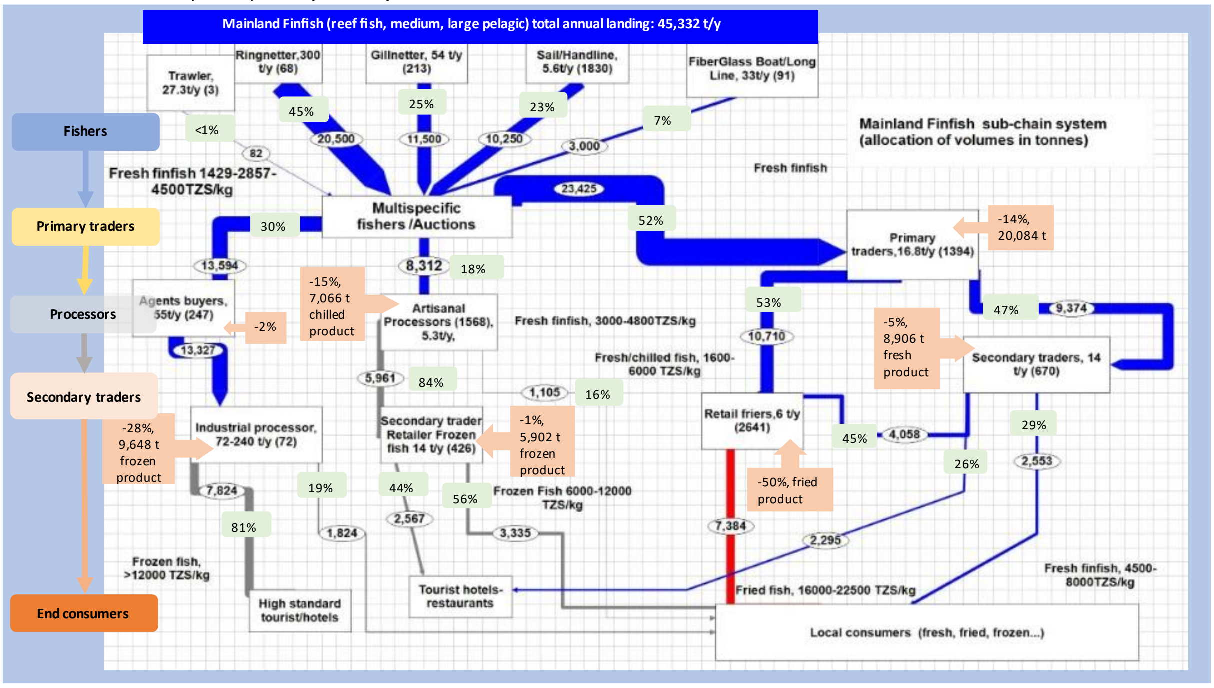


Fig. 2. Lorenz curve on average seasonal income for marine dagaa fishers, processors and traders, reported with Gini Coefficients (G). Panels show income inequalities in (a) across all actor - fishers, processors and traders. (b) different types of actors within fishers' category, (c) different types of actors within processors' category (d) different types of actors within traders' category with dashed line indicating the line of perfect equality.

Finfish MLT Final (20/07/22)

Functional analysis

Sources: Sofreco (2018) and primary data



Volume allocations in Fishers

Table: Initial volumes included in the calculations and comparisons with published figures (annual fisheries report and frame survey, 2019, 2020)

	%	61.5	48.3	66.1															
16/06/2022	44850	16900	18200	9750															
	30%	3900	4200	2250										vol	vol			nb ringnet	nb GN
National Statistics		13000	14000	7500	2857	3400	11000		boat	boat crew	deduced nb fboats	fishers	nb engines	tot t ringnet	tot GN	FG LL	HL S		
		LP	R	MP	Fresh F1	Fresh F2	Fresh F3		annual vol										
Sail canoe	PSRM1		2500	2250	2750				5.6	2	491	982.1					2750		
Ringnet	PRF1M		2500	7500	10000				300	30	33	1000.0	33	10000				33	
Gillnet	PGF1M				2000				54	6	37	222.2	37		2000				37
Gillnet	PGF2M	3500	2500	0		6000			54	6	111	666.7	111		6000				111
Motor/fiberglas	PMLP2	500	1500	0		2000			33	3	61	181.8	61			2000			
Sail canoe	PSRM2	2000	2000	0		4000			5.6	2	714	1428.6					4000		
Ringnet	PRRM2	3000	2500	0		5500			300	30	18	550.0	18	5500				18	
Trawler	PTF2M	41	41	0		82			27.3	28	3	84.1	3						
Ringnet	PRRM3	2500	2500	0			5000		300	30	17	500.0	17	5000				17	
Sail canoe	PSRM3	2000	2500	0			3500		5.6	2	625	1250.0					3500		
Motor/fiberglas	PMLP3	500					1000		33	3	30	90.9	30			1000			
Gillnett		3000					3500		54	6	65	388.9	65		3500				65
	total	17041	18541	9750	14750	17582	13000	0			2205.6	7345.3	375.2	20500.0	11500.0	3000.0	10250.0	68.3	213.0
		45332			45332											45250.0			
																45332.0			
	F1	4750	10000											68.3333333	212.962963	90.9090909	1830.35714		
	F2	9041	8541	17582	total														
	F3	5000	5000	10000				ringnet but more bycatch											
	F4	0	0	0															
	F3+F4	5000	5000	10000															

Commodities/market segments

Finfish

We adopted an alternative approach, based upon the initial price, auction price, and FFM statistics which leads to 3 categories of fish:

- low price (F1, below 2000 TZS/kg, 1429) that will mainly be medium pelagic, and reef fish, for the local markets, under various formats.
- mid price F2 around 3000 (2857) TZS/kg, mainly reef fish, but also some large pelagic, following same channels as the previous one but also leading to products for the upper class market, tourist, frozen.

- high price: 4500 (F3) TZS/kg. These fish are premium quality, large fish, a mix reef fish and large pelagic for the. The channels to industrial high standard processing plant become more and more important, as the opening to the tourist markets. Some may be exported but it is prohibited in Mainland but very low figures on which we are not sure of the marine origin.
- cf annual survey : possibility of frozen fish exported, 168 t, for a value of 1405 MTZS, royalty at 552 TZS/kg, total of 71 MTZS (25/04/22)

FFM price study 2019

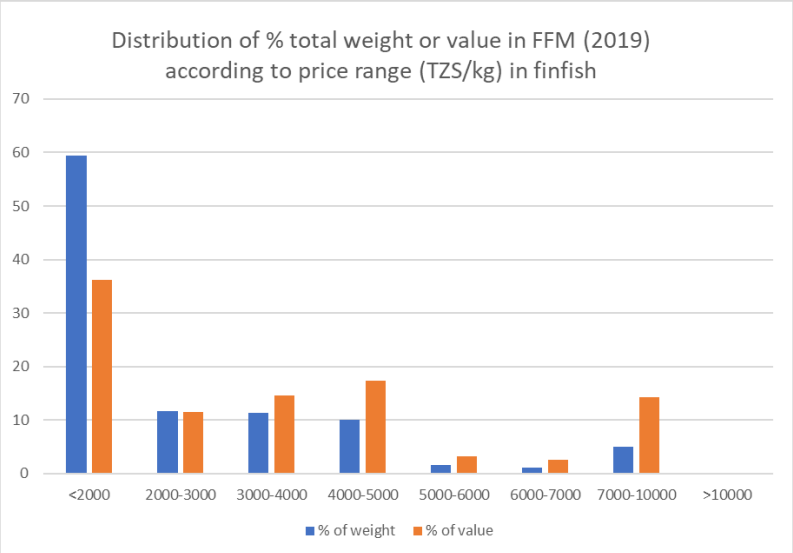
For fresh, chilled fish: The total volume of finfish (excluding crustaceans, octopus, squids), total of 60 different species: total weight of 9772 t, total value of 26188 MTZ, average price of 3860 €/kg.

Étiquettes d	Weight (kg)	Value (TZS)	Moyenne de	Écartype de	Variation coeff in %	Nombre	Weight (t)	Value (MTZS)
Large pelagi	808651.5	3983330480.0	5443.1	2320.8	42.6	12.0	808.7	3983.3
Medium pel	2826686.0	9404366668.0	3590.5	1683.1	46.9	38.0	2826.7	9404.4
Small pelagi	6136980.0	12800702828.0	2983.3	1207.4	40.5	10.0	6137.0	12800.7
Total généra	**9772317.5**	**26188399976.0**	**3859.8**	**1920.9**	**49.8**	**60.0**	**9772.3**	**26188.4**

Interestingly, no reef fish but stipulated in habitat column. In fact, majority are classified in reef areas.
Small pelagic, major part by anchovy, but also sardine-like 465 t at 3200 €/kg.

price range (TZS/kg)	Weight (t)	Value (MTZS)	Average price (TZS/kg)	% of weight	% of value
<2000	5801	9488	1636	59	36
2000-3000	1140	2998	2630	12	11
3000-4000	1109	3842	3464	11	15
4000-5000	978	4562	4666	10	17
5000-6000	148	840	5674	2	3
6000-7000	104	687	6587	1	3
7000-10000	490	3744	7639	5	14
>10000	2	27	11151	0	0
Total	9772	26188		100	100

The price >10000 is represented by the only species of Hump head snapper (Fuatundu in Swahili), large pelagic offshore. The medium (reef) and large categories are distributed in all the prices ranges.



price range (	Weight (t)	Value (MTZS	Average price (TZS/kg)		% of weight	% of value
<2000	5801	9488	1636		59	36
2000-3000	1140	2998	2630		12	11
3000-4000	1109	3842	3464		11	15
4000-5000	978	4562	4666		10	17
5000-6000	148	840	5674		2	3
6000-7000	104	687	6587		1	3
7000-10000	490	3744	7639		5	14
>10000	2	27	11151		0	0
Total	9772	26188			100	100

The case of <2000 TZS/kg: small pelagic, covered by the anchovy sub-chain. Ok
The case identified as FF1 in Feb 2022: range of 2000 to 4000 TZS, about 20% of tot weight and value. Mixture of small (sardine like), med pelagic, large pelagic (but reef fish as well according to habitat).--> clearly lower price in (the FFM) : 3000 TZS FFM as the ref price taken in new calculations. F1 price at fisher level : hypo at around 1500 (1429)

The case of FF2 (Feb 2022): range of 4000 to 7000 TZS : still mixture of small, med and large pelagics (and reef fish), representing 13% of tot weight and 23% of tot value: 6000 TZS in new calculations (no change with Feb 2022). → F2 price at fishers level: around 3000 TZS/kg (2857)

The case of FF3 and FF4: minor part, taken together in subsequent spring analysis, growing part of large pelagic, large and off shore fish, range of >7000 TZS, 5 % weight and 14% value. 8000 TZS/kg taken as ref price.

Frozen fish (and octopus):
177 t for a tot value of 850 MTZS, average price 4799 TZS/kg.. It includes reef, large and medium pelagic, tuna and red snapper heads, and slight volume of octopus (1.2 t at 6700 TZS/kg). Heads of tuna and red snapper are marketed around 2000 TZS/kg. The average ref price for FFM in could be taken at 4700 TZS/kg, closed to the FF1 case in Feb 2022.

Actors

Primary sector – Fishing systems

Sofreco (2018), 3 types, very diversified systems, that we translated in a set of examples, typical cases, out of Sofreco's data and our primary data.

Type 1: Small boats + handlines / longlines / gillnets / traps
This system is not specific to reef fish fishing; in fact, depending on the time of the year, the weather, these fishers can target a wide diversity of fish, captures< 5 t/year
→ PSRM1 (F1)
→ PSRM2 (F2)
→ PSRM3 (F3)

Type 2: Large gillnets + handlines + longlines (25-50 t/y)
→ PGLPM, PMLP2 (F2)
→ PMLP3 (F3)

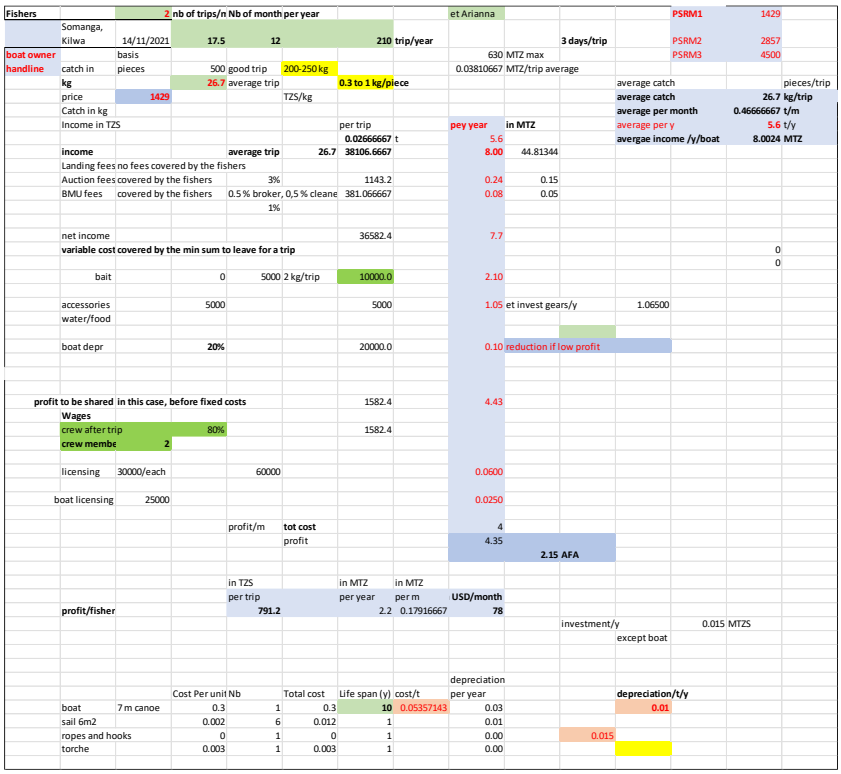
Type 3: Ring-nets (> 100 t/y)
→ PRF1M (F1)
→ PRRM2 (F2)
→ PRRM3 (F3)
The question is to define the average annual volumes for a ringnetter, and for the fleet of ringetter.
Trawler (by catch) PTF2M (F2)

Examples of counts

Ringnetters

Ring net	30 crew	cost per trip at sea				trips/y		cost/t	catch/day		catch t/mon	catch t/year					
June 2022	Mafia																
eg Mafia		basis t/d		1	0 to 70	288											
30	catch in trays	35 kg/tray	0 to 70			8571.42857	trays/year		1041.66667	kg/day	25	300	300 t/y				
	kg																
	tray price	low high, average			157500			4500	selling TZS/kg			per year					
	Catch in kg	1000000 to 7000000										300					
	Income in MTZS											1350	MTZS				
	Landing fees																
	Auction fees		to report	2% income sales		hyp/ 0.05						27.00					
	BMU fees		to report	1% income sales								13.50					
	Net income in TZS																
	variable cost covered by the min sum to leave for a trip							0.89				256.26					
	fuel		313.5	liters	2200 TZS/l			0.69	90300 l/y		198.66	198.66	313.541667	per trip			
	bait	no	Arianna 90300 l/y														
	ice	no															
	accessories	misc		hypo	cf data			0.20	per trip			57.6					
Gross profit												1053.24					
	fixed costs							0.28	per trip			23.04					
	repairs	engine			0.03			0.03				8.64					
	maintainance	boat			0.05			0.05				14.4					
	loans				0.2			0.20					cancelled				
	licensing	per fisher (h	25000/y		625000			0.0022	divided par day trip			0.75					
	licensing/boat		115000/y					0.0004				0.115					
Profit to be shared in this case												1030.20					
Gross added value		**Net income -variable costs - fixed costs**															
	Wages																
	crew	30	75%									772.7	crew	25.755			
	skipper	1	15% of boat owner part									257.6	skipper+boat owner				
	boat owner (	group								boat owner part (+ skippe		38.6	skipper				
												218.9	boat woner				
	Capital depreciation											195.0	minus depr				
	depreciation boat																
	depreciation engine																
	depreciation gears											194	AFA	4500			
					per year	per month		in USD/month									
	profit/fisher/y				25.76	2.1		933									
	profit/boat owner				194.00	16.2		7029									
	financial fees																
	skipper				38.63	3.2		1400									
			Cost Per unit	Nb	Total cost M	Life span (y)	cost/d	depreciation per year	dep/day								
	boat	18-22 m	12	1	12	7.5	0.04166667	1.6									
					0												
	engine	2 sizes	9.64	2	19.28	15	0.06694444	1.28533333	0.00428444								
	gears	depth 44m	42	1	42	2	0.14583333	21	0.07								
					0	2		0.00	0								
					0	2		0.00	0								
					0												
	pump		0.65	1	0.65		depreciation/trip		cost per year	per day							
	generator		0.4	1	0.4		0.00	1.07	1.20	0.004							
	ropes		0.04	15	0.6		0.01	1.60	1.80	0.006	0.015						
	buoys		0.03	30	0.9		0.01	2.40	2.70	0.009							

Handliners



Fishers		2	**nb of trips/n**	**Nb of month**	**per year**			et Arianna				PSRM1	1429		
	Somanga, Kilwa	14/11/2021	**17.5**	**12**		**210**	**trip/year**			**3 days/trip**		PSRM2	2857		
boat owner		basis						630	MTZ max			PSRM3	4500		
handline	catch in	pieces	500	good trip	200-250 kg			0.03810667	MTZ/trip average						
	kg		26.7	average trip		**0.3 to 1 kg/piece**					average catch			pieces/trip	
	price	1429			TZS/kg						**average catch**		**26.7**	**kg/trip**	
	Catch in kg										**average per month**		**0.46666667**	**t/m**	
	Income in TZS					per trip		**pey year**	**in MTZ**		average per y		5.6	t/y	
						0.02666667	t	5.6			**avergae income /y/boat**		**8.0024**	**MTZ**	
	income			**average trip**	**26.7**	**38106.6667**		**8.00**	44.81344						
	Landing fees	no fees covered by the fishers													
	Auction fees	covered by the fishers		3%		1143.2		0.24	0.15						
	BMU fees	covered by the fishers		0.5 % broker, 0,5 % cleane		381.066667		0.08	0.05						
				1%											
	net income					36582.4		7.7							
	variable cost covered by the min sum to leave for a trip												0		
													0		
	bait		0	5000	2 kg/trip	10000.0		2.10							
	accessories		5000			5000		1.05	et invest gears/y		1.06500				
	water/food														
	boat depr		**20%**			20000.0		0.10	reduction if low profit						
profit to be shared	**in this case, before fixed costs**					1582.4		4.43							
	Wages														
	crew after trip		80%			1582.4									
	crew membe	**2**													
	licensing	30000/each		60000				0.0600							
	boat licensing	25000						0.0250							
				profit/m	**tot cost**			4							
					profit			4.35							
									2.15 AFA						
				in TZS		in MTZ	in MTZ								
				per trip		per year	per m	**USD/month**							
	profit/fisher			**791.2**		2.2	0.17916667	**78**							
										investment/y		0.015	MTZS		
											except boat				
								depreciation							
			Cost Per unit	Nb	Total cost	Life span (y)	cost/t	per year			**depreciation/t/y**				
	boat	7 m canoe	0.3	1	0.3	**10**	0.05357143	0.03			**0.01**				
	sail 6m2		0.002	6	0.012	1		0.01							
	ropes and hooks		0	1	0	1		0.00		0.015					
	torche		0.003	1	0.003	1		0.00							

Gillnetters

Fishers			**nb of trips/n**	**Nb of month**	**per year**											
Kilwinje, Kilwa	**13/11/21**	**6**	**7**	**12**			**60**	**trip/year**	**180**		**3 days/trip**		**PGLPM**			
boat owner		basis							180	MTZ max						
gillnet	catch in								2.5738713	MTZ/trip average						
sail+ engine	**kg**	low 2-3 pieces high 100 pieces, average					**8-10 kg/piece**						average catch		71.5	pieces/trip
16/06/2022	price	30000/piece		**2857**	TZS/kg								average catch		643.5	kg/trip
	Catch in kg	22.5	low	800									**average per month**		**4.5045**	**t/m**
	Income in TZS	75000		3000000					**per year**	**in MTZ**			average per y		**54.054**	t/y
							0.8	t	**54.1**				avergae income /y/boat		154.432278	MTZ
	income			**good trip**			**3000000**		**154.43**							
	Landing fees	no fees covered by the fishers														
	Auction fees	covered by the fishers		3%			90000		4.63							
	BMU fees	covered by the fishers		0.5 % broker, 0,5 % cleane			30000		1.54							
				1%												
	variable costs (co	**covered by the min sum to leave for a trip**					**500000.0**		52	30000						
	fuel		10164 l/y	2200 TZS/l			0.0	0	**22.4**	10164 liters		**et oil**				
	bait	no														
	ice						50000.0		3.00		259kg					
		isolated box rent 100000/trip					100000.0		6.00							
	accessories								0.00							
	water/food						50000.0		3.00							
	crew	**50000/membre/trip before**					**300000.0**		18.00		3	18000000				
		after trip														
profit to be shared	**in this case, before fixed costs**						**2380000.0**		95.89							
	gears		**15%**				**357000.0**		**14.38**							
	Wages															
	crew after trip		65%				1547000.0		62.33	10.3885369						
	boat owner part		20%				476000.0		19.18							
	licensing	25000/each		150000					0.1500							
	BMU tax			2000					0.0020							
	boat licensing			23000					0.0230							
Capital depreciation																
depreciation engine																
depreciation boat																
depreciation gears																
							in MTZ	in MTZ								
							per year	per m	**in USD/month**							
	profit/fisher/y						**13.4**	**1.11571141**	**485**							
	profit/boat owner/boat/y						**19.2**	**1.59823645**	**695**							
							13.5	**1.125**	**489**	AFA						
									depreciation							
			Cost Per unit	Nb	Total cost	Life span (y)			per year							
	boat	dhow	10	1	10	20			0.5							
	engine		7	1	7	15			0.466666667							
	gears		8	1	8	2			4							

Fiber glass/Long line

update 16/06/22																	
Fishers	14/11/2021	3	nb of trips/m	Nb of month per year								PMLP2	2857				
LP	Somanga,Kilwa		20.5	12	246	trips/yea						PMLP3	4500				
														not			
fiber vessekl		basis										PMLP1	1429	included			
arianna	catch in	tray/bucket															
	kg	135	20 low		75	average/day trip			2.7675	t/m	33.210	t/y					
	price TZS/kg	5000 low	6000 high	4500	or 2857			F3					F2	F1			
	Catch in kg					per day trip		MTZS per y					MTZS per y	MTZS per y			
								4500					2857	1429			
					Income in MTZS			149.45					94.88	47.46			
	Landing fees	no fees covered by the fishers															
	Auction fees	no fees covered by the fishers			3%	0		4.48					2.85	1.42			
	BMU fees	no fees covered by the fishers			1%	0		1.49					0.95	0.47			
	Net income in TZS					0		143.47					91.09	45.56			
	variable costs (co	covered by the min sum to leave for a trip															
	fuel		5940 l/y	2200	TZS/l	37500.0		13.07					13.07	13.07			
	bait		5000/kg squid			25000.0		6.15					6.15	6.15			
	ice	no															
	accessories	misc		Et ci-desous invets.		6000.0		1.48					1.48	1.48			
	profit to be shared	in this case, before fixed costs						122.77					70.39	24.86			
	Wages																
	crew	3	72%				29.465568	88.40			16.894		50.68	17.90	5.97		
	captain	1 among	3%					3.68					2.11	0.75			
	boat owner part		25%			27.8	29.09	30.69	placed in land fees		15.498		17.60	6.22	less depr and fixed		
						AFA											
	fixed costs																
	repairs	engine						0.00					0.00	0.00			
	maintainance	boat				replaced in consumables		0.00					0.00	0.00			
	accessories							0.18					0.18	0.18			
	licensing/y	boat	50000					0.05					0.05	0.05			
	fisher		30000					0.09					0.09	0.09			
	Capital depreciation																
	depreciation engine							0.90					0.90	0.90			
	depreciation boat							0.70					0.70	0.70			
	depreciation gears					replaced in consumables		0.18					0.18	0.18			
						in USD/month	per m				in USD	MTZS per m			MTZS/m		
	profit/fisher					1067.6	2.5	29.47			612.1	1.4	16.89	5.97	0.50	216.22	
	profit/boat owner					1054.1	2.4	29.09			561.5	1.3	15.50	4.62	0.38	167.25	
	captain					133.4	0.3	3.68			76.5	0.2	2.11	0.75	0.06	27.03	
	AFA bota owner					1005.797101	2.31333333	27.76			507.2	1.2	14				
							in MTZ	depreciation/y	Depreciation/t								
			Cost Per unit	Nb	Total cost	Life span (y)		per year									
	boat	fiberglass 11	14	1	14	20		0.7	0.02107799								
	antifouling																
	engine	15 HP Yamah	4.5	1	4.5	5		0.9									
	gears	lines, hooks,	0.202	1	0.202	1		0.202									
	life jackets		0.04	9	0.36	2		0.18									

Traders/Retailers

- Primary traders: buy in the auctions, as the great majority of medium pelagic - reef fish are sold on auctions.
- two subcategories identified:
    - the independant primary traders buying and organizing shipping to the FFM mainly or to local markets, mainly fresh fish, on ice.
    - The agents, traders, buying in auctions and almost exclusively selling to industrial processing plants, with no formal agreement, but the plant provides ice if necessary.

<u>Agent for the industrial processors, 12 % gross margin</u>

purchasing	selling	% gros margin	income M/m
F1 : 1429	1625	12.0615385	-0.22
F2 : 2857	3250	12.0923077	0.4
F3 : 4500	5125	12.195122	5.03

Critical if low price. Good profit if high value fish.

17/11/2021		update 11/04/22		CPAFM		12% gross margin		agent for processing plant	
female		20-25 days/m		276	days				750000
cept anchovy									
average vol/d		200	in kg		55	t/y	56		850000
purchasing price in TZS /k		2857	571400						100000
selling price		3250							
loss 5%	190	617500	in TZS						need to have
gross margin		46100				MTZS			
					Income/y	179.40			
purchasing for TIFM		sales				Cost/y			No equipme
F1	1429.00	1625	labour					142850	
F2	2857.00	3250	auction	2.00%		3.59		170000	before, direc
F3	4500.00	5125	purchase		571400	159.30		250000	
			ice	no				300000	
			plastic bag	no				862850	before, direc
			BMU		0.01	1.79			Trading all fi
			distict taxes			0.02			
									difficult, ver
	WB data		transports	some	150 TZS/kg	8.28			Formed an u
	tel, food, home transport			6000/d		1.66			
			licenes	16000/y		0.02			
			total cost			174.65			their vision :
							per m	usd	
			total	Profit		4.75	0.40	172	

Independent CPF .. primary trader
Again, critical for low value fish. → low value fish mostly consumed locally

	purchasing price (TZS/kg)	selling	income MTZS/m
			-
F1	1429	3000	0.27830833
F2	2857	6000	1.29249167
F3	4500	8000	1.37229167

Processors

- play an important role in increasing shelf-life (frying, drying, freezing, etc.) and so enable sales to a wider range of more distant locations. Two categories identified:
- Traders and small processors, (TAFM) cutting, curing and freezing. Artisanal, small-scale, located closed to landing sites, they organize their shipping to the FFM.
- Industrial processing plants, the same actors identified for the prawn and octopus value chains.

Table 12: Simplified profitability analysis of traders - processors (gut, cut and freeze)

Characteristics	Incomes / month		Costs		
Trader supervising processing (gutting, cutting and freezing) of tuna and reef fish. Sends products to markets in regional cities.	Tuna		Labour		
	Season: Sept-March		Services/Kg		
	Quantity	628	Cutting	158	
	Price	4 789	Input/Kg		
	Total	3 005 098	Ice	158	
	Red Snapper		Electricity	264	
	Season: April-June		Taxes/Kg		
	Quantity	320	Market	5	SGP
	Price	4 000	District taxes	400	
	Total	1 280 000	Licenses	9	
	Others		Corporate tax	44	
	Season:		Transport/Kg	401	
	Quantity		Losses/Kg	565	
	Price				
	Total				
	Av. Income per month		**Total cost / month**	**Total Cost / Kg**	
		4 285 098	1 899 041	2 004	**1 615**

Source: Sofreco, 2018

Support services

As the other sub-chains, they include: support services (transportations which are important, sea or trucks), and boat (construction, repair), engine (importers, maintenance), suppliers of gears and accessories ..

Contractual agreements

No formal agreements most of the time between all actors.

Woman's involvement

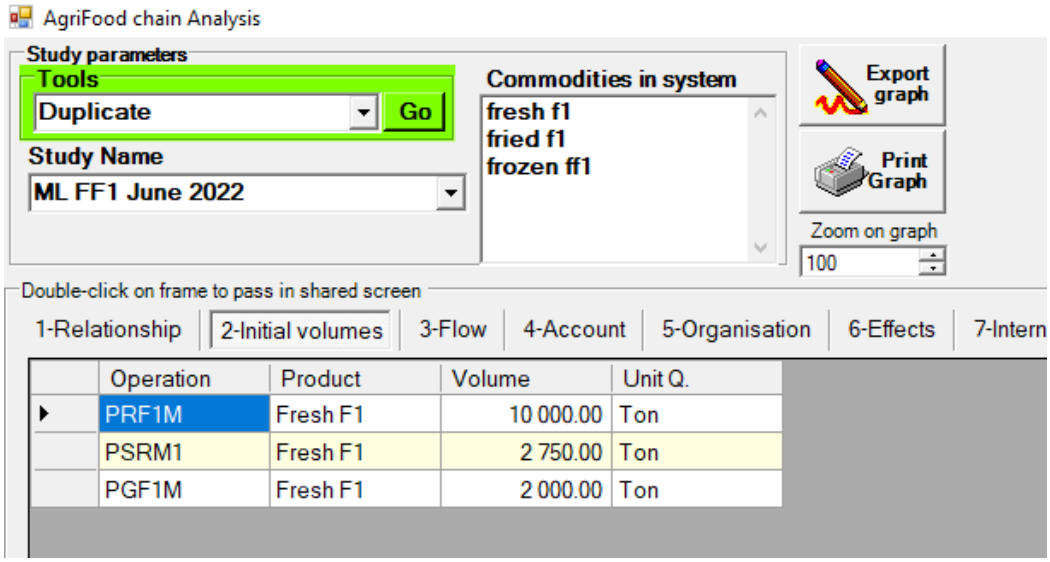
- increasing number at the primary trade and processing level.
- retailers, processing (friers)

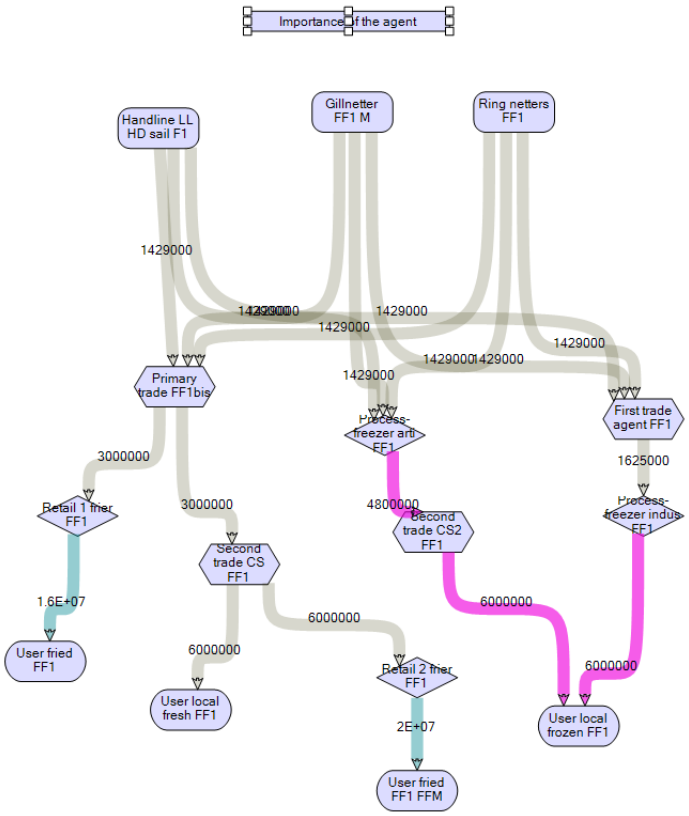
Economic analysis

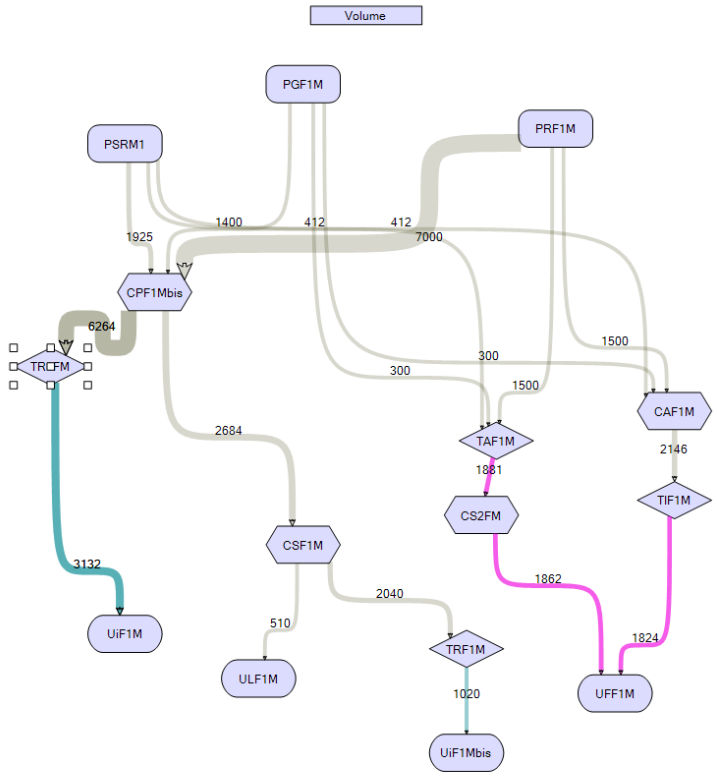
Finfish sub-chain FF1

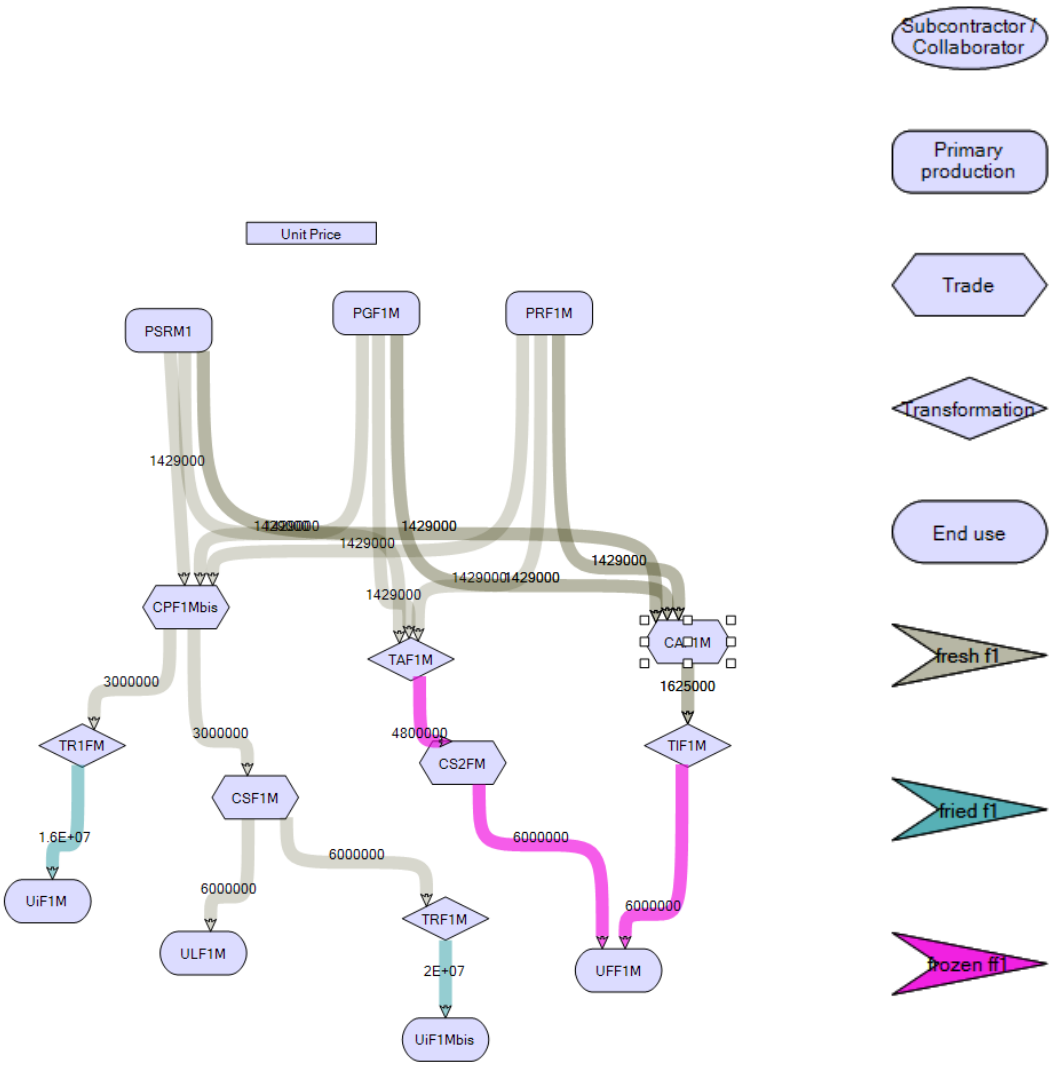
16/06/22 update

Flows actors, prices, vol




Importance of the agent
Handline LL HD sail F1
Gillnetter FF1 M
Ring netters FF1
1429000
1429000
1429000
1429000
1429000
1429000
1429000
Primary trade FF1bis
Process-freezer art FF1
First trade agent FF1
3000000
1625000
Retail 1 trier FF1
3000000
4800000
Process-freezer indus FF1
Second trade CS2 FF1
Second trade CS FF1
1.6E+07
6000000
6000000
User fried FF1
6000000
Retail 2 trier FF1
User local frozen FF1
User local fresh FF1
2E+07
User fried FF1 FFM


Volume
PGF1M
PRF1M
PSRM1
1400
412
412
1925
7000
CPF1Mbis
6264
1500
300
300
1500
TRCFM
CAF1M
TAF1M
2684
2146
1881
TIF1M
CS2FM
CSF1M
3132
1862
2040
510
1824
TRF1M
UiF1M
ULF1M
UFF1M
1020
UiF1Mbis



Profitability 22/06/22

Table of detail accounts from AFA

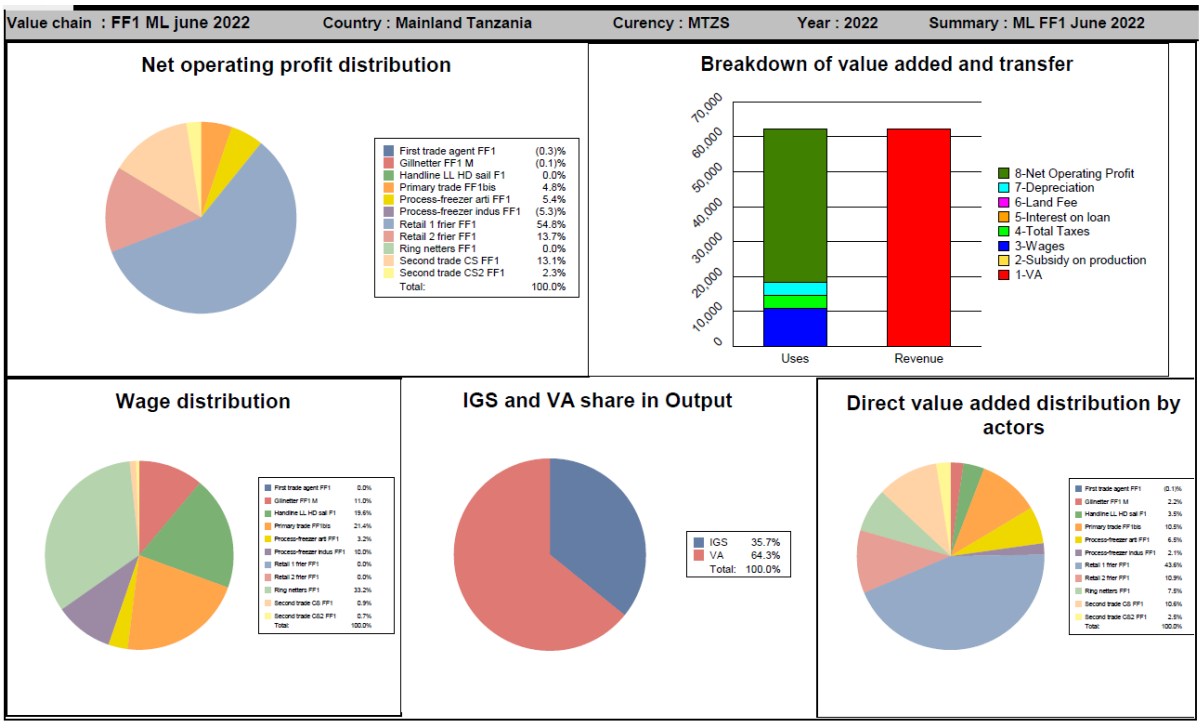
Indicators by Actors and estimations of number of actors												
Actor	Output		IGS	VA	Wages	Tax		Land fee	Depreciation	Net Operatir	Volume Inpu	Annual Capa	Nb of Actors
Ring netters FF1	14 290		9 596	4 694	3 580	172		133	796	13	10 000.00	300.00	33
Primary trade FF1bis	26 845		20 261	6 584	2 306	1 807		0	72	2 399	10 325.00	16.80	615
Second trade CS FF1	15 302		8 698	6 604	101	1		0	0	6 502	2 684.00	14.00	192
Retail 2 frier FF1	20 402		13 578	6 825	0	19		0	0	6 806	2 040.00	6.00	340
First trade agent FF1	3 487		3 560	-72	0	95		0	0	-168	2 212.00	55.00	40
Second trade CS2 FF1	11 171		9 631	1 540	71	355		0	0	1 114	1 881.00	14.00	134
Process-freezer indus FF	12 233		10 949	1 284	1 073	215		0	2 623	-2 627	2 146.00	72.00	30
Process-freezer arti FF1	9 027		4 983	4 044	350	1 013		0	0	2 682	2 212.00	5.30	417
Retail 1 frier FF1	50 111		22 894	27 216	0	57		0	0	27 159	6 264.00	6.00	1 044
Handline LL HD sail F1	3 930		1 714	2 216	2 112	73		0	15	16	2 750.00	5.60	491
Gillnetter FF1 M	2 858		1 480	1 378	1 191	35		0	184	-32	2 000.00	54.00	37
VALUE CHAIN	96 977		34 663	62 314	10 782	3 842		133	3 690	78 529	----------	3 373	
total	169 656	0	107 342	62 314	10 782	3 842	0	133	3 690	43 866	44 514	549	3 373

Introduction of variation in the categories:

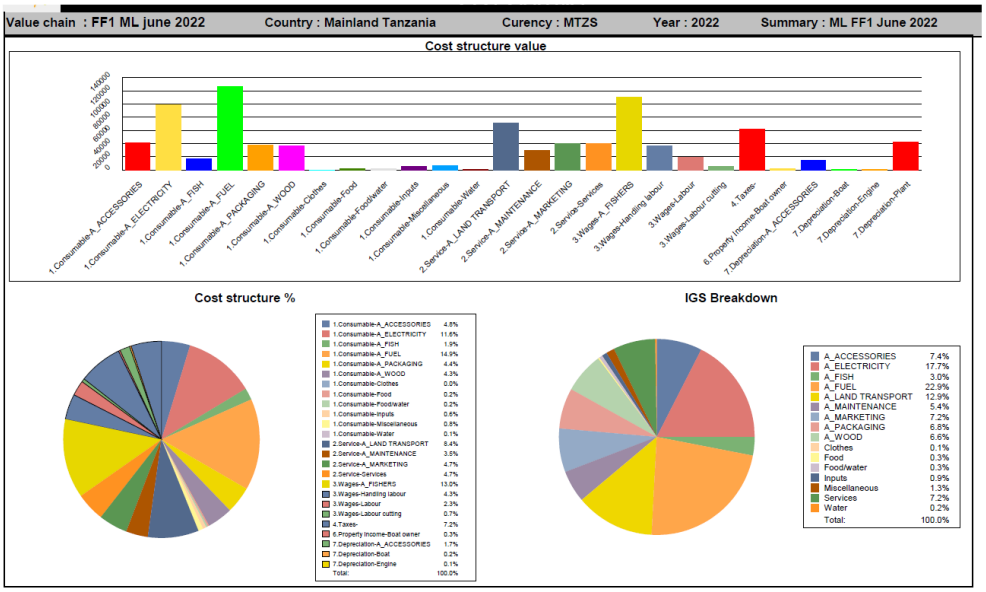
- Primary traders independent: CPF1Mbis with change in operating costs, no transportation by boat, actors based in Mainland, continental, not the islands like Mafia. Operating costs are lower and compatible with the prices. Change in the volume figure.

	purchasing price (TZS/kg)	selling	income MTZS/m
CPF1Mbis			
F1	1429	3000	0.44169167

- volumes for agents and industrial processers: minor in volumes, negative NOP. We consider that only artisanal processors are involved, and capture a small volume of the landed F1 fish.



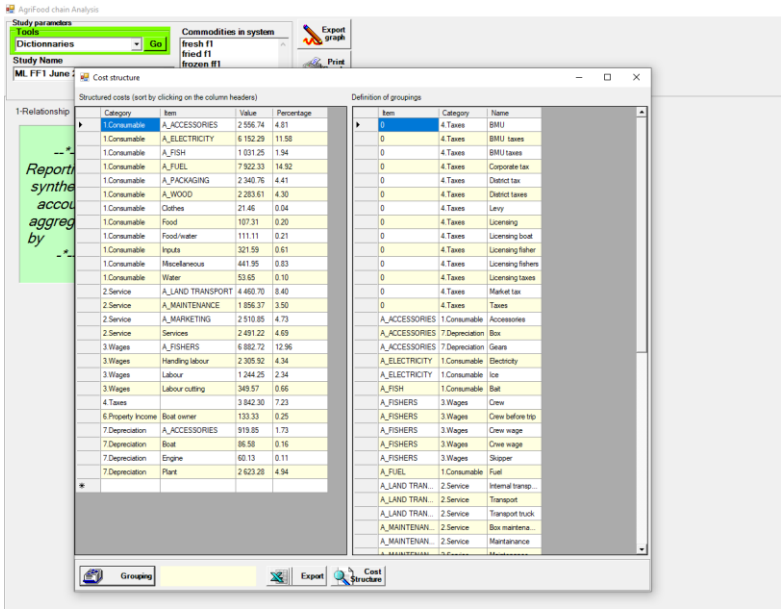
Effects calculation



Cost structures 23/06/22

Grouping

>85% of consumables and services disaggregated are grouped and documented



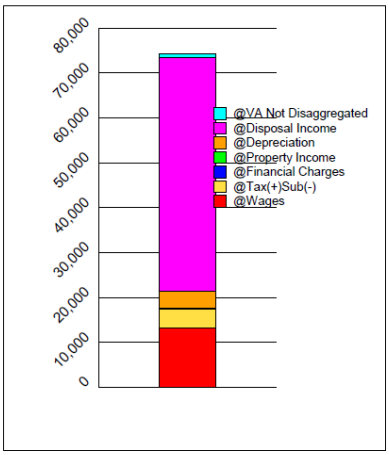
Coefficients for disaggregation of IGS

Category	Item	IGS0	IMP0	IMP1	VA1	Wag1	Tax1	Fin1	Pro1	Dep1	Net1	IMP2	VA2	Wag2	Tax2	Fin2	Pro2	Dep2	Net2
1.Consumable	A_ACCESSORIES	2 557	0.00	0.46	0.20	0.06	0.02	0.00	0.00	0.00	0.92	0.24	0.07	0.04	0.02	0.00	0.00	0.00	0.36
1.Consumable	A_ELECTRICITY	6 152	0.00	0.00	0.54	0.45	0.02	0.00	0.00	0.00	0.53	0.01	0.26	0.01	0.02	0.00	0.00	0.00	0.36
1.Consumable	A_FISH	1 031	0.00	0.04	0.84	0.02	0.01	0.00	0.00	0.00	0.97	0.12	0.00	0.01	0.01	0.00	0.00	0.00	0.11
1.Consumable	A_FUEL	7 922	0.00	0.95	0.01	0.07	0.07	0.00	0.00	0.00	0.86	0.01	0.49	0.01	0.03	0.00	0.00	0.00	0.68
1.Consumable	A_PACKAGING	2 341	0.00	0.55	0.10	0.18	0.17	0.00	0.00	0.00	0.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.Consumable	A_WOOD	2 284	0.00	0.37	0.31	0.19	0.05	0.00	0.00	0.00	0.76	0.00	0.25	0.00	0.00	0.00	0.00	0.00	0.29
1.Consumable	Clothes	21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.Consumable	Food	107	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.Consumable	Food/water	111	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.Consumable	Inputs	322	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.Consumable	Miscellaneous	442	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.Consumable	Water	54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.Service	A_LAND TRANSPORT	4 461	0.00	0.13	0.52	0.21	0.10	0.00	0.00	0.00	0.69	0.29	0.00	0.02	0.02	0.00	0.00	0.00	0.27
2.Service	A_MAINTENANCE	1 856	0.00	0.22	0.53	0.01	0.01	0.00	0.00	0.00	0.98	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.09
2.Service	A_MARKETING	2 511	0.00	0.00	0.68	0.12	0.01	0.00	0.00	0.00	0.87	0.01	0.06	0.01	0.00	0.00	0.00	0.00	0.14
2.Service	Services	2 491	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Direct and indirect effects (MTZS)

	Direct effects	Indirect effects	Total effects
Imports	0	12 579	12 579
IC not disaggregated		10 161	10 161
Value added			
Wages	10 782	2 435	13 218
Taxes	*3 842*		
Subsidy	*0*		
Tax (+) Sub (-)	3 842	447	4 289
Interest on loan	0	0	0
Land Fee	133	0	133
Depreciation	3 690	0	3 690
Net Operating Profit	43 866	8 335	52 201
VA not disag.		706	706
VA Total	62 314	11 924	74 237

Total Value Added distribution (MTZS)



Macro-économic effects indicators

VC VAT/GDP	0.1%	
VC VAT/Vc Output	76.6%	with Vc Output 96,977.02 MTZS
VC VAT/Agricutural GDP	0.2%	
VC Tot. Import/ N. Imports	0.1%	
VC Export/Total Export	0.0%	
VC Trade Balance	-12 579.3	
VC Trade Balance/ N Imports	-0.1%	
VC T. Net Transfer/State budget	0.0%	
VC T. Wages/N.Wages	0.2%	
VC Tot. Disposal Income/Nat. Incom	0.0%	

Reference

Agricultural GDP	37 192 537	MTZS
Disposal income	115 340 321	MTZS
GDP	139 641 854	MTZS
National Export	22 394 010	MTZS
National Import	23 713 761	MTZS
State budget	23 502 700	MTZS
Value Chain Export	0	MTZS
Wages	7 006 311	MTZS

International viability 230622

No value chain export !

Category	Item	Life time	Balance	Tradable	Labor	Capital	+Txv / -Sub	Revolv	OutM	InpM	LabM	CapM	OutP	InpP	LabP	CapP
Intermediate Totals								0.00	96 977	27 403	13 249	8 617	96 977	27 183	13 249	8 617

TRANSFERS

	Tax/Sub on tradable		Other transfer		Interest on lease	Total
	Output	Input	Tax on Op.	Subs. on Op.		
Prod +Sub/-Tax Output	0					
Prod -Sub/-Tax Input		0				
Tax on Operation			3 842			
Subs on Operation				0		
Financial Charge					0	
Total Transfert Market	0	0	3 842	0	0	3 842

VALUE AT PARITY PRICES

	Tradable		Domestics Factors		Transfers	Profit
	Output	Input	Wage	Capital		
Market price	96 977	27 403	13 249	8 617	3 842	43 866
Parity price	96 977	27 183	13 249	8 617		47 928
Divergence	0	220	0	0	3 842	-4 062

ACCRONYMS

+Txv / -Sub Ad Valorem Taxe or Subisidy on Tradable

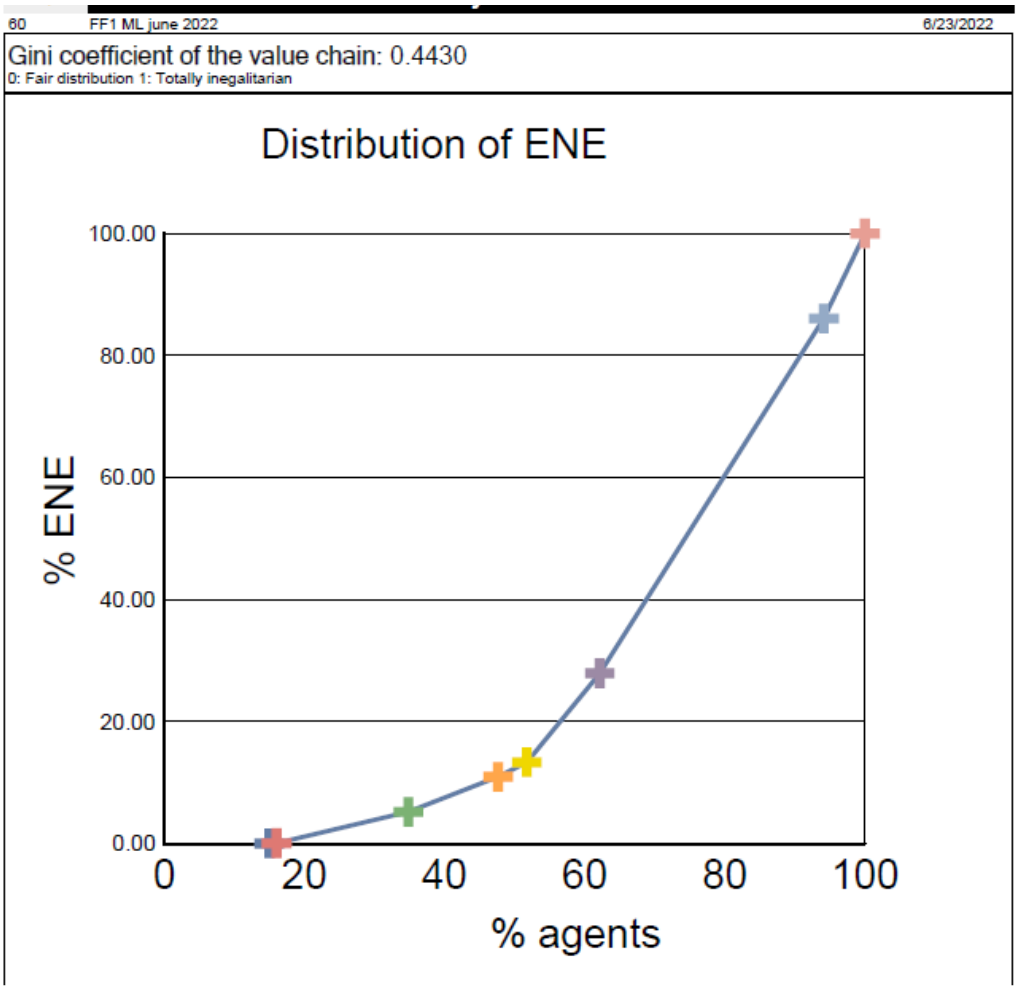
Term	Does not apply
OutM	Output value at Market price
InpM	Intermediate Good and Services value at Market Price
LabM	Labor value at Market price
CapM	Capital value at Market Price
OutP	Output value at Parity Price
InpP	Intermediate Good and Services value at Parity Price
LabP	Labor value at Parity Price
CapP	Capital value at Parity Price

INDICATORS

Dometic Ressource Cost	0.19
Nominal Protection Coefficient	1.00
Effective Protection Coefficient	1.00
Equivalent producer subsidy	-0.04

Gini and jobs

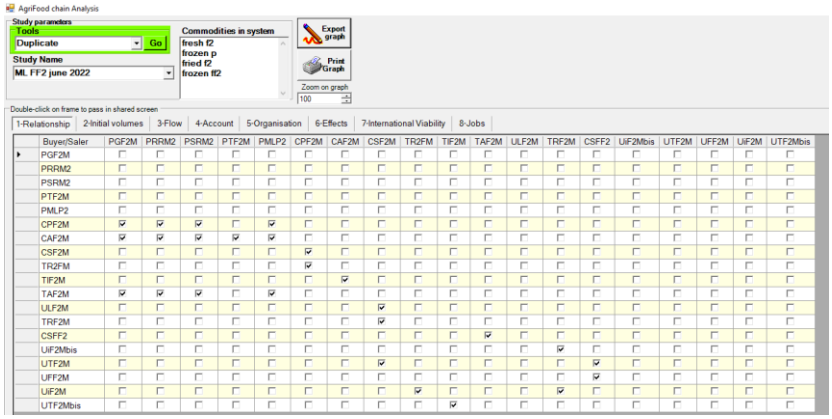
Gini 23/06/22



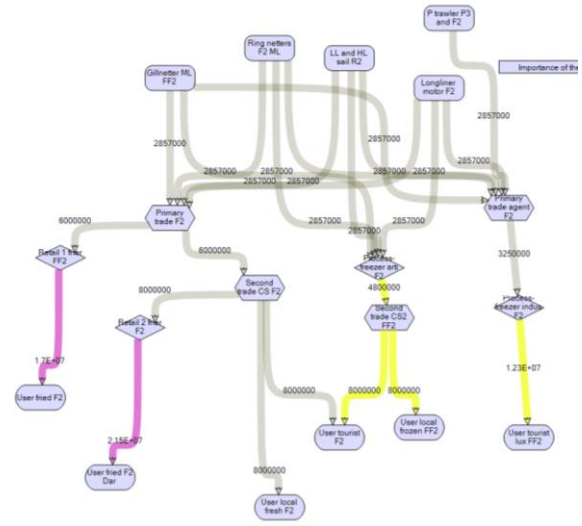
FF2 sub chain

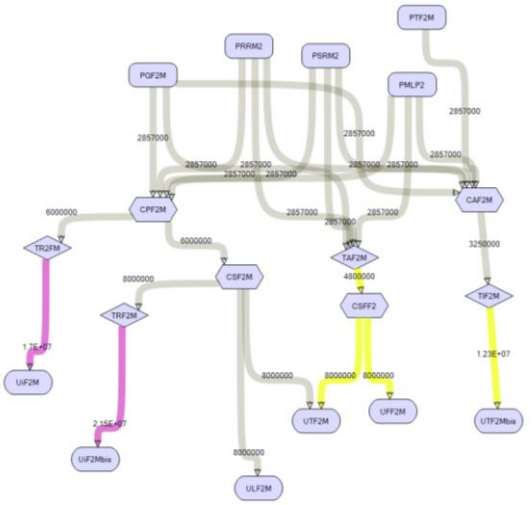
Actor flow, price, volumes

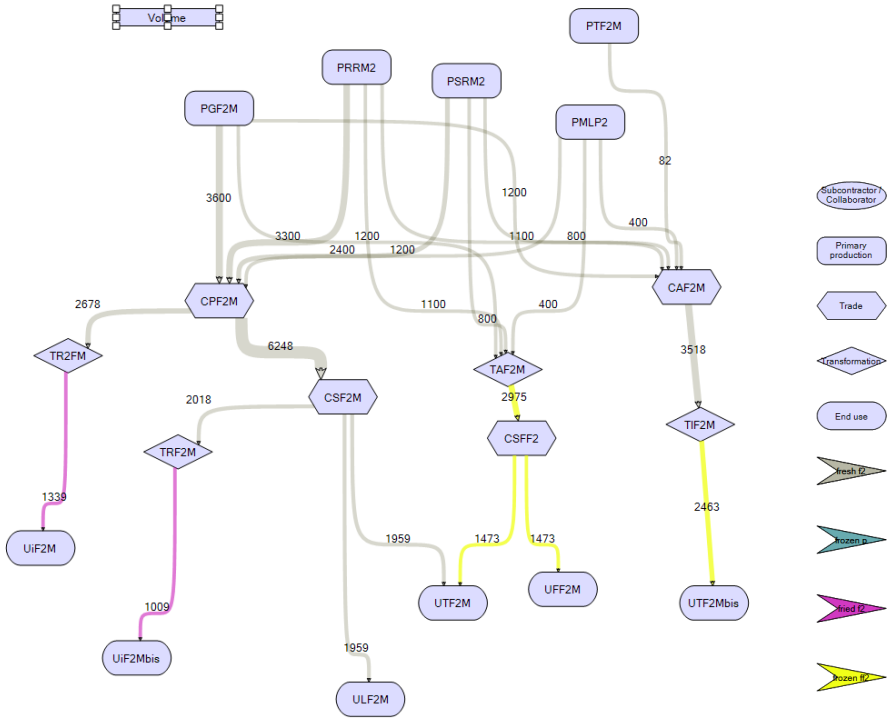
16/06/22



No change in initial vol. Frozen P cancelled. From trawlers







profitability

16/06/22

Table: Detail accounts from AFA

Indicators by Actors and estimations of number of actors													
Actor	Output	Subsidy	IGS	VA	Wages	Tax	Interest	Land fe	Depreci	Net Operating Pr	Volume Input / Output	Annual	Nb of Actors
Primary trade F2	53 550	0	36 599	16 952	5 610	1 575	0	0	63	9 704	10 500.00	16.80	625
Second trade CS F2	47 481	0	38 984	8 497	234	2	0	0	0	8 261	6 248.00	14.00	446
Retail 2 frier F2	21 693	0	17 465	4 228	0	18	0	0	0	4 209	2 018.00	6.00	336
Primary trade agent F2	11 434	0	11 099	334	0	116	0	0	0	219	3 582.00	55.00	65
Second trade CS2 FF2	23 562	0	15 235	8 327	112	562	0	0	0	7 653	2 975.00	14.00	213
Gillnetter ML FF2	17 142	0	5 930	11 212	8 927	190	0	1 500	552	43	6 000.00	54.00	111
Process-freezer indus	30 290	0	23 768	6 522	1 759	352	0	0	4 300	111	3 518.00	240.00	15
Process-freezer arti F2	14 280	0	12 880	1 400	553	728	0	0	0	119	3 500.00	5.30	660
Retail 1 frier FF2	22 759	0	17 819	4 940	0	24	0	0	0	4 916	2 678.00	6.00	446
Ring netters F2 ML	15 714	0	5 435	10 279	7 970	173	0	1 687	438	12	5 500.00	300.00	18
LL and HL sail R2	11 428	0	5 593	5 835	5 657	175	0	0	0	3	4 000.00	5.60	714
P trawler P3 and F2	234	0	153	81	28	11	0	0	0	42	82.00	27.30	3
Longliner motor F2	5 714	0	1 501	4 213	3 200	66	0	848	97	1	2 000.00	33.00	61
VALUE CHAIN	129 641	0	46 821	82 820	34 050	3 994	0	4 035	5 449	82 114	----------	3 714	

Many adjustments in the operating accounts for each actor.

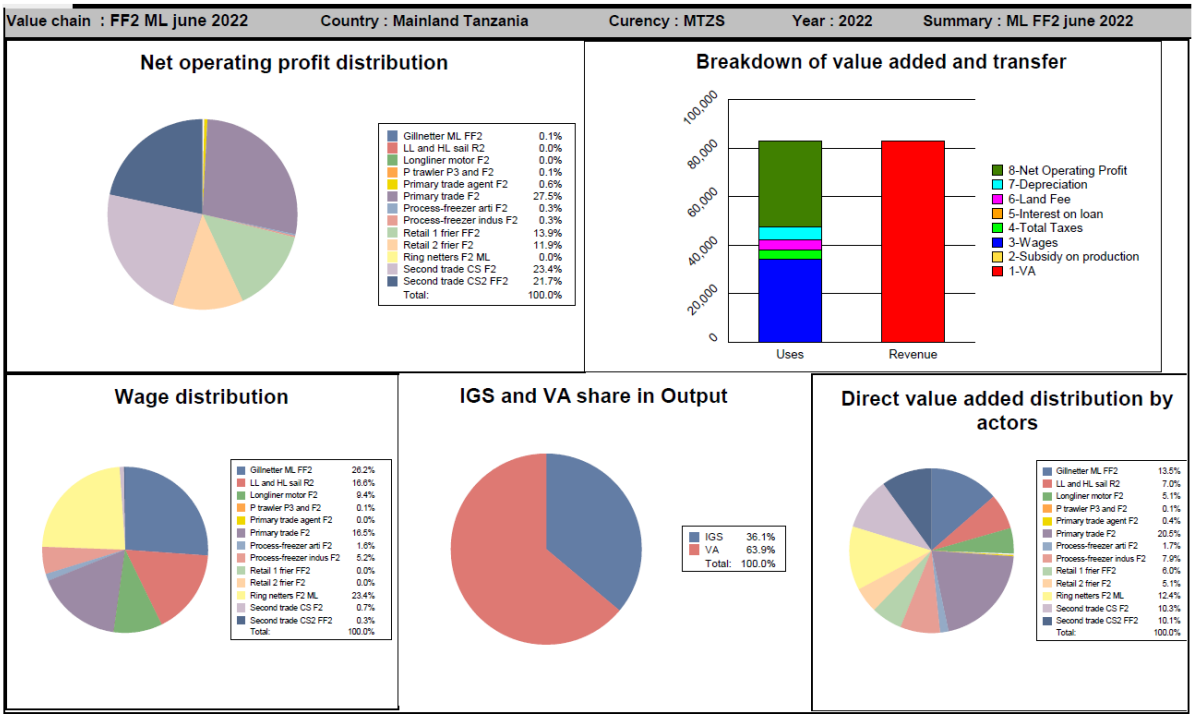
For instance : TAFM, use of WB data except district taxes, put at 400 TZS/kg, where our data→ 150 TZS/kg→ NOP just neutral.

Retail 1 frier : limit for >NOP is market price : 17000 TZS/kg (fried) (NOP<0 at 16000)

Retail 2 frier at the FFM : limit price is 21500 TZS/kg fried

TIFM: limit price is 12300 € for frozen FF2→ only tourist hotel luxe, 240 t/y, → creation of new cat, tourist lux, buying FF2 (frozen) at 12300

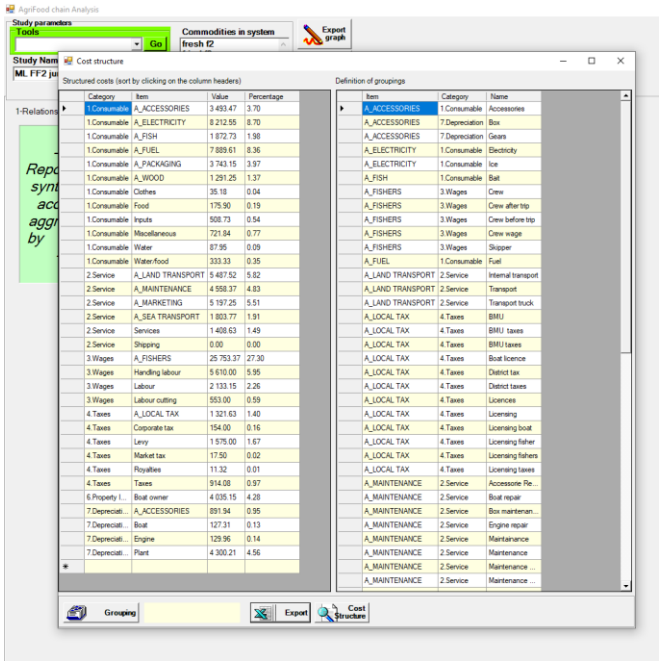
➔ Confirmed by ITW processor (May 2022)

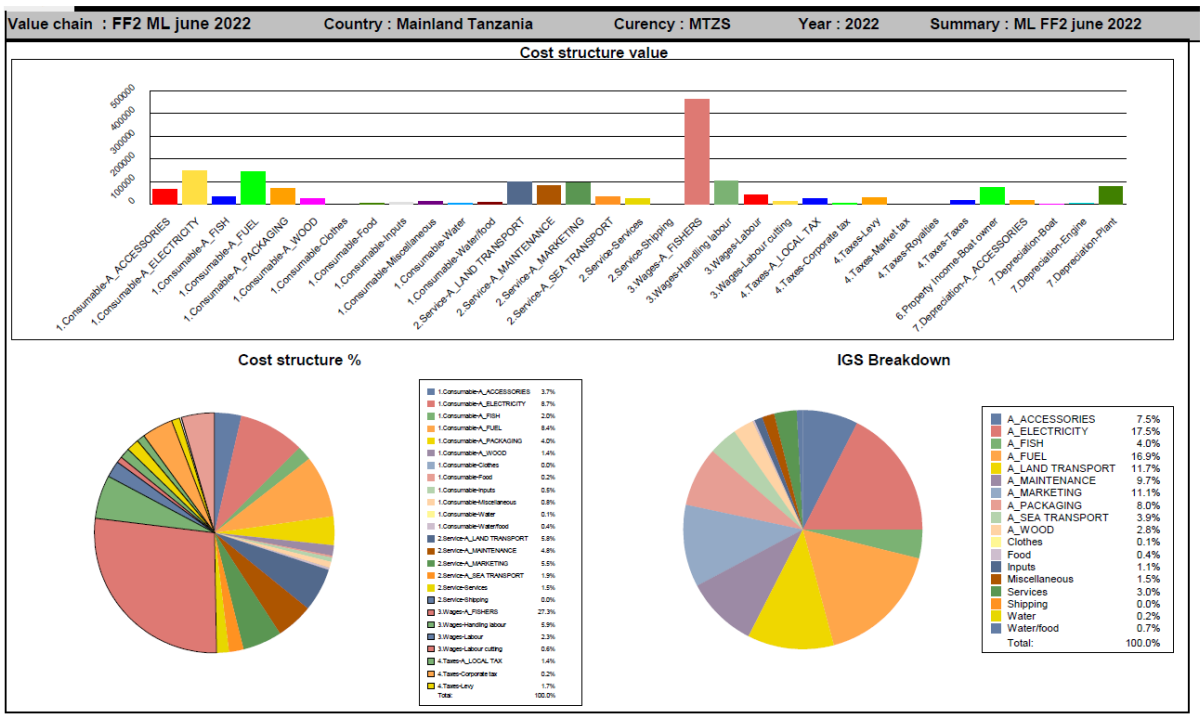


Calculation of effects 23/06/22

Regrouping

Among these, IGS disaggregated: 1.consumables : total >86%

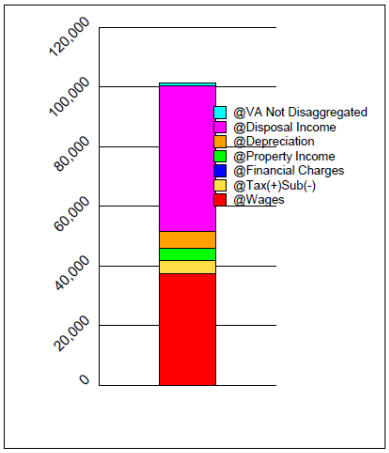




Direct and indirect effects (MTZS)

	Direct effects	Indirect effects	Total effects
Imports	0	15 084	15 084
IC not disaggregated		13 126	13 126
Value added			
Wages	34 050	3 314	37 363
Taxes	*3 994*		
Subsidy	*0*		
Tax (+) Sub (-)	3 994	601	4 594
Interest on loan	0	0	0
Land Fee	4 035	0	4 035
Depreciation	5 449	0	5 449
Net Operating Profit	35 293	13 828	49 121
VA not disag.		870	870
VA Total	82 820	18 613	101 433

Total Value Added distribution (MTZS)



Macro-économic effects indicators

VC VAT/GDP	0.1%	
VC VAT/Vc Output	78.2%	with Vc Output 129,641.38 MTZS
VC VAT/Agricutural GDP	0.3%	
VC Tot. Import/ N. Imports	0.1%	
VC Export/Total Export	0.0%	
VC Trade Balance	-15 083.5	
VC Trade Balance/ N Imports	-0.1%	
VC T. Net Transfer/State budget	0.0%	
VC T. Wages/N.Wages	0.5%	
VC Tot. Disposal Income/Nat. Incom	0.0%	

Reference

Agricultural GDP	37 192 537	MTZS
Disposal income	115 340 321	MTZS
GDP	139 641 854	MTZS
National Export	22 394 010	MTZS
National Import	23 713 761	MTZS
State budget	23 502 700	MTZS
Value Chain Export	0	MTZS
Wages	7 006 311	MTZS

International viability

23/06/22

Category	Item	Life time	Balance	Tradable	Labor	Capital	+Txv / -Sub	Revolv	OutM	InpM	LabM	CapM	OutP	InpP	LabP	CapP
Intermediate Totals								0.00	129 641	34 773	37 377	18 206	129 641	34 454	37 377	18 206

TRANSFERS

	Tax/Sub on tradable		Other transfer		Interest on lease	Total
	Output	Input	Tax on Op.	Subs. on Op.		
Prod +Sub/-Tax Output	0					
Prod -Sub/-Tax Input		0				
Tax on Operation			3 994			
Subs on Operation				0		
Financial Charge					0	
Total Transfert Market	0	0	3 994	0	0	3 994

VALUE AT PARITY PRICES

	Tradable		Domestics Factors		Transfers	Profit
	Output	Input	Wage	Capital		
Market price	129 641	34 773	37 377	18 206	3 994	35 293
Parity price	129 641	34 454	37 377	18 206		39 605
Divergence	0	319	0	0	3 994	-4 313

ACCRONYMS

+Txv / -Sub Ad Valorem Taxe or Subisidy on Tradable

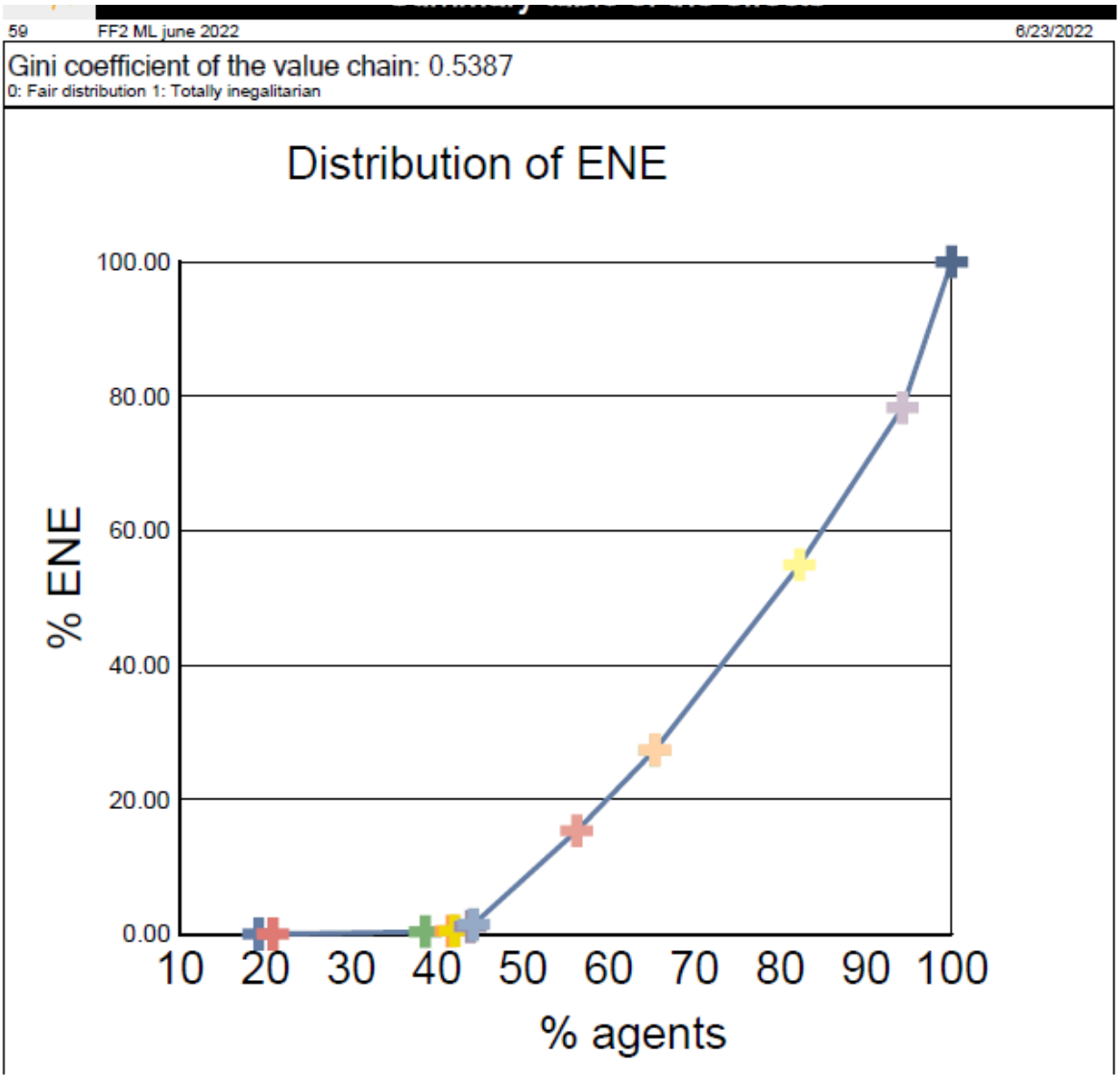
Term	Does not apply
OutM	Output value at Market price
InpM	Intermediate Good and Services value at Market Price
LabM	Labor value at Market price
CapM	Capital value at Market Price
OutP	Output value at Parity Price
InpP	Intermediate Good and Services value at Parity Price
LabP	Labor value at Parity Price
CapP	Capital value at Parity Price

INDICATORS

Dometic Ressource Cost	0.39
Nominal Protection Coefficient	1.00
Effective Protection Coefficient	1.00
Equivalent producer subsidy	-0.03

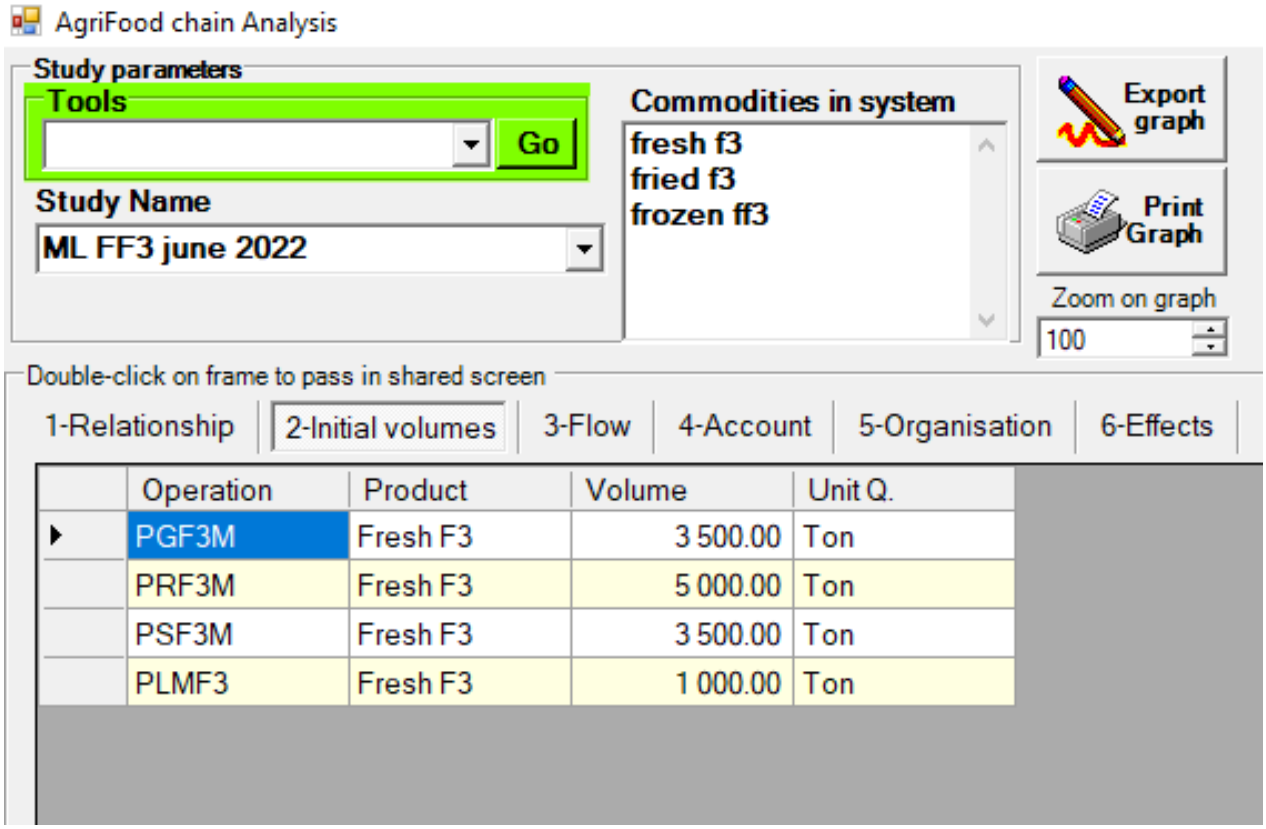
Gini 23/06/22 and jobs

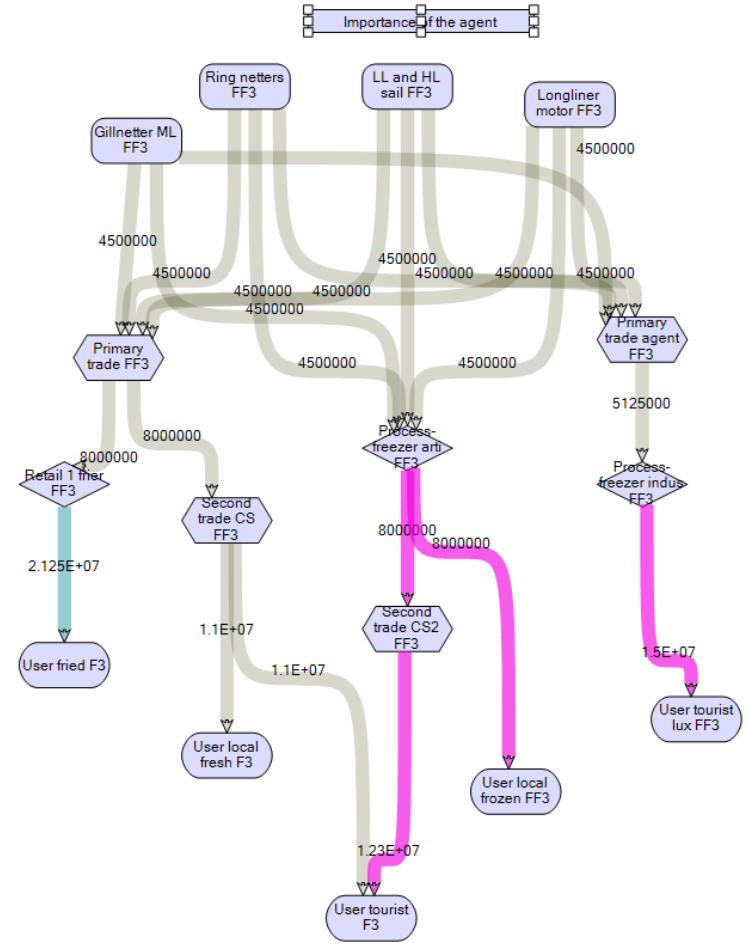
Gini: 0.5387

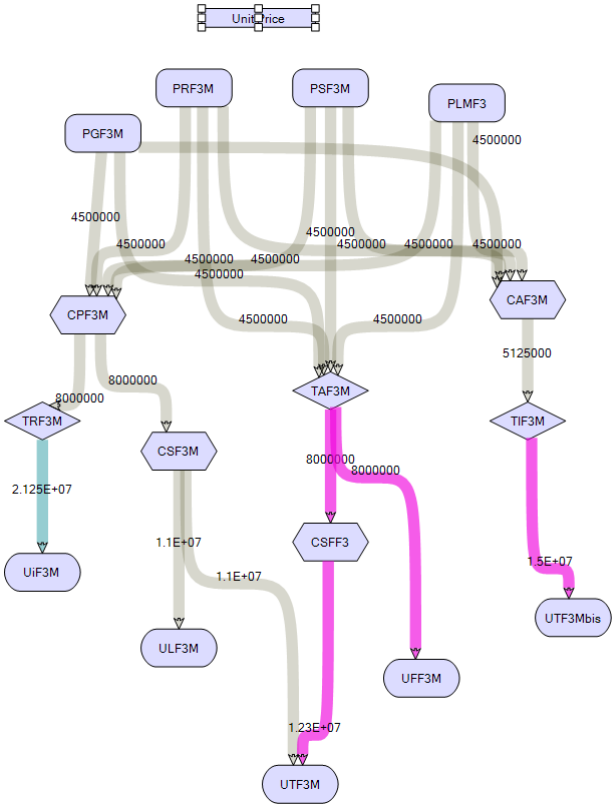


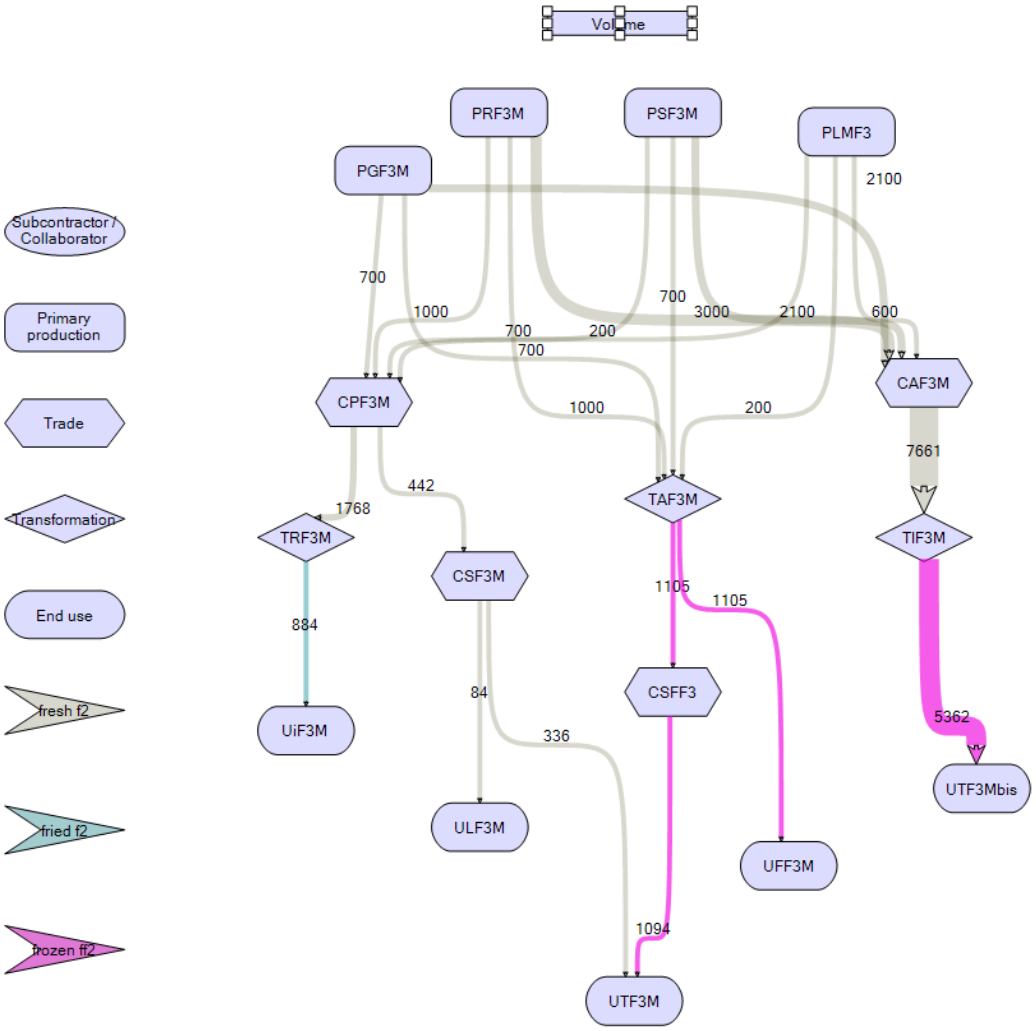
FF3 sub-chain

Actor flow 16/06/22


AgriFood chain Analysis
Study parameters
Tools
Go
Study Name
ML FF3 june 2022
Commodities in system
fresh f3
fried f3
frozen ff3
Export graph
Print Graph
Zoom on graph
100
Double-click on frame to pass in shared screen
1-Relationship
2-Initial volumes
3-Flow
4-Account
5-Organisation
6-Effects
Operation
Product
Volume
Unit Q.
PGF3M
Fresh F3
3 500.00
Ton
PRF3M
Fresh F3
5 000.00
Ton
PSF3M
Fresh F3
3 500.00
Ton
PLMF3
Fresh F3
1 000.00
Ton


Importance of the agent
Ring netters FF3
LL and HL sail FF3
Longliner motor FF3
Gillnetter ML FF3
4500000
Primary trade FF3
Primary trade agent FF3
Process-freezer arti FF3
Process-freezer indus FF3
5125000
8000000
Retail 1 fler FF3
Second trade CS FF3
2.125E+07
1.1E+07
Second trade CS2 FF3
1.5E+07
User fried F3
User local fresh F3
User tourist lux FF3
User local frozen FF3
1.23E+07
User tourist F3

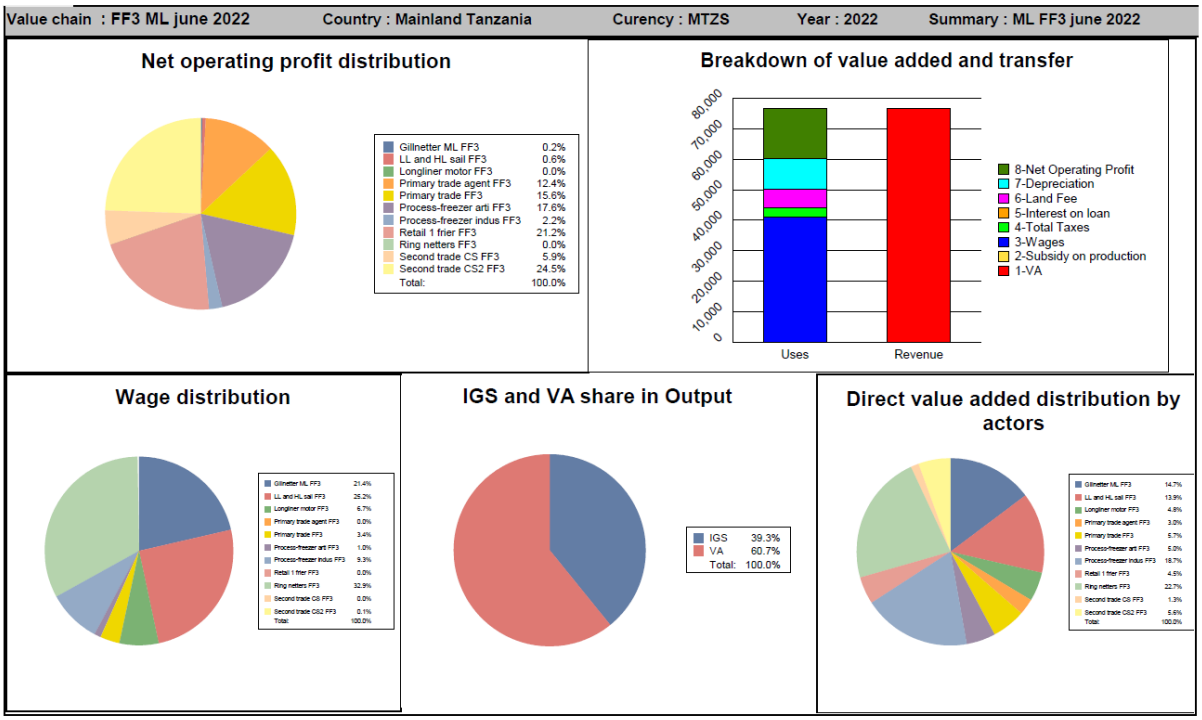

Unit price
PRF3M
PSF3M
PLMF3
PGF3M
4500000
CPF3M
CAF3M
TAF3M
5125000
8000000
TRF3M
CSF3M
TIF3M
2.125E+07
1.1E+07
CSFF3
1.5E+07
UiF3M
ULF3M
UFF3M
UTF3Mbis
1.23E+07
UTF3M



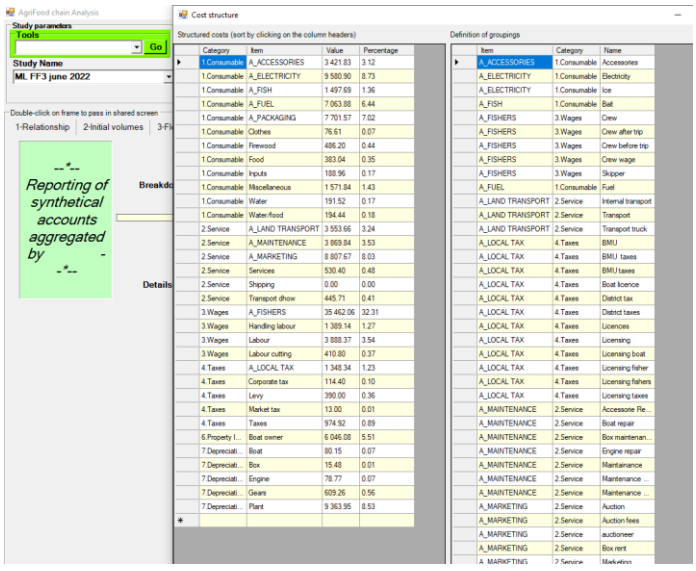
FF3 actor profit 16/06/22

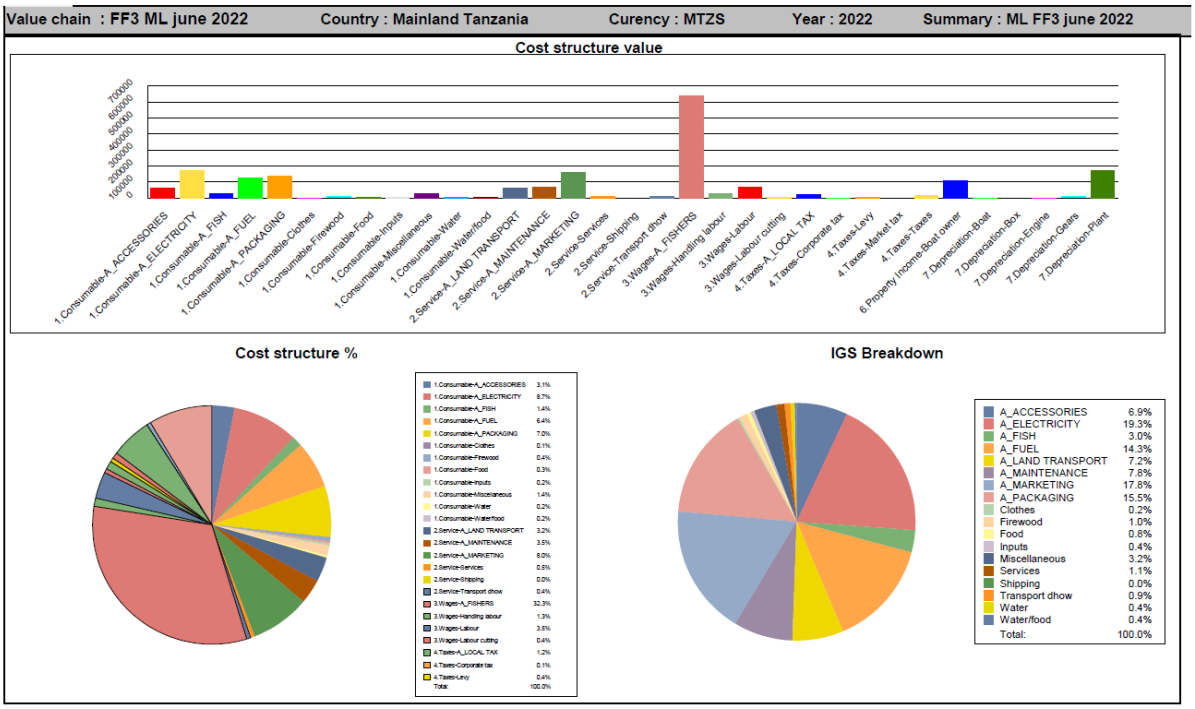
A full new chain, upbuilt from duplication of FF2 and adjustments on prices and budgets for each actor. No need to have F3 and F4.

Actor	Output		IGS	VA	Wages	Tax		Land fee	Depreciatior	Net Operatir	Volume Inpu	Annual Capa	Nb of Actors
Primary trad	17 680		13 334	4 346	1 389	390		0	15	2 551	2 600.00	16.80	155
Second trade	4 619		3 642	977	17	0		0	0	960	442.00	14.00	32
Primary trad	39 261		36 985	2 277	0	252		0	0	2 025	7 800.00	55.00	142
Second trade	13 456		9 195	4 261	41	209		0	0	4 011	1 105.00	14.00	79
Gillnetter MI	15 750		4 461	11 289	8 797	169		1 977	322	25	3 500.00	54.00	65
Process-free	80 437		66 120	14 318	3 830	766		0	9 364	357	7 661.00	240.00	32
Process-free	17 680		13 840	3 840	411	541		0	0	2 889	2 600.00	5.30	491
Retail 1 frier	18 785		15 302	3 483	0	16		0	0	3 467	1 768.00	6.00	295
Ring netters	22 500		5 105	17 395	13 518	239		3 233	398	6	5 000.00	300.00	17
LL and HL sai	15 750		5 069	10 681	10 375	209		0	0	97	3 500.00	5.60	625
Longliner mc	4 500		795	3 705	2 772	49		836	48	0	1 000.00	33.00	30
VALUE CHAI	126 137		49 566	76 571	41 150	2 841		6 046	10 148	65 952	----------	1 961	
total	250 418		173 847	76 571	41 150	2 841		6 046	10 148	16 387			1 961



Cost structures MLT FF3 23/06/22





Calculation of effects 23/06/22

Coefficients for disaggregation of IGS

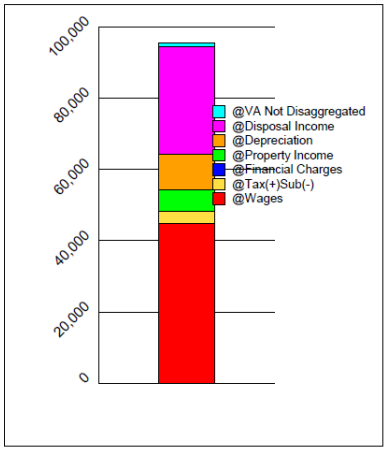
Category	Item	IGS0	IMP0	IMP1	VA1	Wag1	Tax1	Fin1	Pro1	Dep1	Net1	IMP2	VA2	Wag2	Tax2	Fin2	Pro2	Dep2	Net2
1.Consumable	A_ACCESSORIES	3 422	0.00	0.46	0.20	0.06	0.02	0.00	0.00	0.00	0.92	0.24	0.07	0.04	0.03	0.00	0.00	0.00	0.36
1.Consumable	A_ELECTRICITY	9 581	0.00	0.00	0.54	0.45	0.02	0.00	0.00	0.00	0.53	0.01	0.26	0.01	0.02	0.00	0.00	0.00	0.36
1.Consumable	A_FISH	1 498	0.00	0.04	0.84	0.02	0.01	0.00	0.00	0.00	0.97	0.12	0.00	0.01	0.00	0.00	0.00	0.00	0.11
1.Consumable	A_FUEL	7 064	0.00	0.95	0.01	0.07	0.07	0.00	0.00	0.00	0.86	0.01	0.49	0.01	0.03	0.00	0.00	0.00	0.68
1.Consumable	A_PACKAGING	7 702	0.00	0.55	0.10	0.18	0.17	0.00	0.00	0.00	0.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.Consumable	Clothes	77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.Consumable	Firewood	486	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.Consumable	Food	383	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.Consumable	Inputs	189	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.Consumable	Miscellaneous	1 572	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.Consumable	Water	192	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.Consumable	Water/food	194	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.Service	A_LAND TRANSPORT	3 554	0.00	0.13	0.52	0.21	0.10	0.00	0.00	0.00	0.69	0.29	0.00	0.02	0.00	0.00	0.00	0.00	0.27
2.Service	A_MAINTENANCE	3 870	0.00	0.22	0.53	0.01	0.01	0.00	0.00	0.00	0.98	0.06	0.01	0.01	0.00	0.00	0.00	0.00	0.09
2.Service	A_MARKETING	8 808	0.00	0.00	0.68	0.11	0.01	0.00	0.00	0.00	0.88	0.01	0.06	0.01	0.00	0.00	0.00	0.00	0.14
2.Service	Services	530	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.Service	Shipping	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.Service	Transport dhow	446	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Grouping: on consumables and services, and others

Direct and indirect effects (MTZS)

	Direct effects	Indirect effects	Total effects
Imports	0	12 742	12 742
IC not disaggregated		13 944	13 944
Value added			
Wages	41 150	3 599	44 750
Taxes	*2 841*		
Subsidy	*0*		
Tax (+) Sub (-)	2 841	553	3 394
Interest on loan	0	0	0
Land Fee	6 046	0	6 046
Depreciation	10 148	0	10 148
Net Operating Profit	16 387	13 827	30 213
VA not disag.		918	918
VA Total	76 571	18 897	95 468

Total Value Added distribution (MTZS)



Macro-économic effects indicators

VC VAT/GDP	0.1%	
VC VAT/Vc Output	75.7%	**with Vc Output 126,136.98 MTZS**
VC VAT/Agricutural GDP	0.3%	
VC Tot. Import/ N. Imports	0.1%	
VC Export/Total Export	0.0%	
VC Trade Balance	-12 742.0	
VC Trade Balance/ N Imports	-0.1%	
VC T. Net Transfer/State budget	0.0%	
VC T. Wages/N.Wages	0.6%	
VC Tot. Disposal Income/Nat. Incom	0.0%	

Reference

Agricultural GDP	37 192 537	MTZS
Disposal income	115 340 321	MTZS
GDP	139 641 854	MTZS
National Export	22 394 010	MTZS
National Import	23 713 761	MTZS
State budget	23 502 700	MTZS
Value Chain Export	0	MTZS
Wages	7 006 311	MTZS

International viability 23/06/22

Category	Item	Life time	Balance	Tradable	Labor	Capital	+Txv / -Sub	Revolv	OutM	InpM	LabM	CapM	OutP	InpP	LabP	CapP
Intermediate Totals								0.00	126 137	40 065	44 888	21 347	126 137	39 723	44 888	21 347

TRANSFERS

	Tax/Sub on tradable		Other transfer		Interest on lease	Total
	Output	Input	Tax on Op.	Subs. on Op.		
Prod +Sub/-Tax Output	0					
Prod -Sub/-Tax Input		0				
Tax on Operation			2 841			
Subs on Operation				0		
Financial Charge					0	
Total Transfert Market	0	0	2 841	0	0	2 841

VALUE AT PARITY PRICES

	Tradable		Domestics Factors		Transfers	Profit
	Output	Input	Wage	Capital		
Market price	126 137	40 065	44 888	21 347	2 841	16 996
Parity price	126 137	39 723	44 888	21 347		20 179
Divergence	0	342	0	0	2 841	-3 183

ACCRONYMS

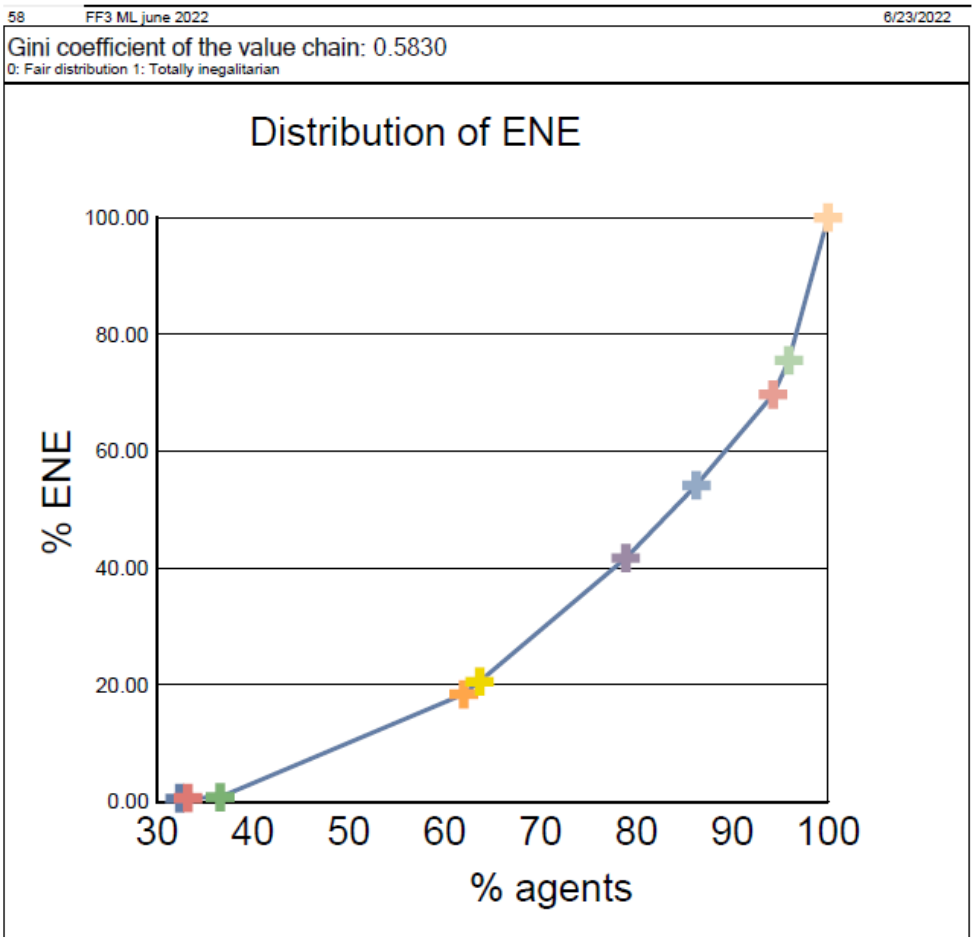
+Txv / -Sub Ad Valorem Taxe or Subisidy on Tradable

Term	Does not apply
OutM	Output value at Market price
InpM	Intermediate Good and Services value at Market Price
LabM	Labor value at Market price
CapM	Capital value at Market Price
OutP	Output value at Parity Price
InpP	Intermediate Good and Services value at Parity Price
LabP	Labor value at Parity Price
CapP	Capital value at Parity Price

INDICATORS

Dometic Ressource Cost	0.52
Nominal Protection Coefficient	1.00
Effective Protection Coefficient	1.00
Equivalent producer subsidy	-0.03

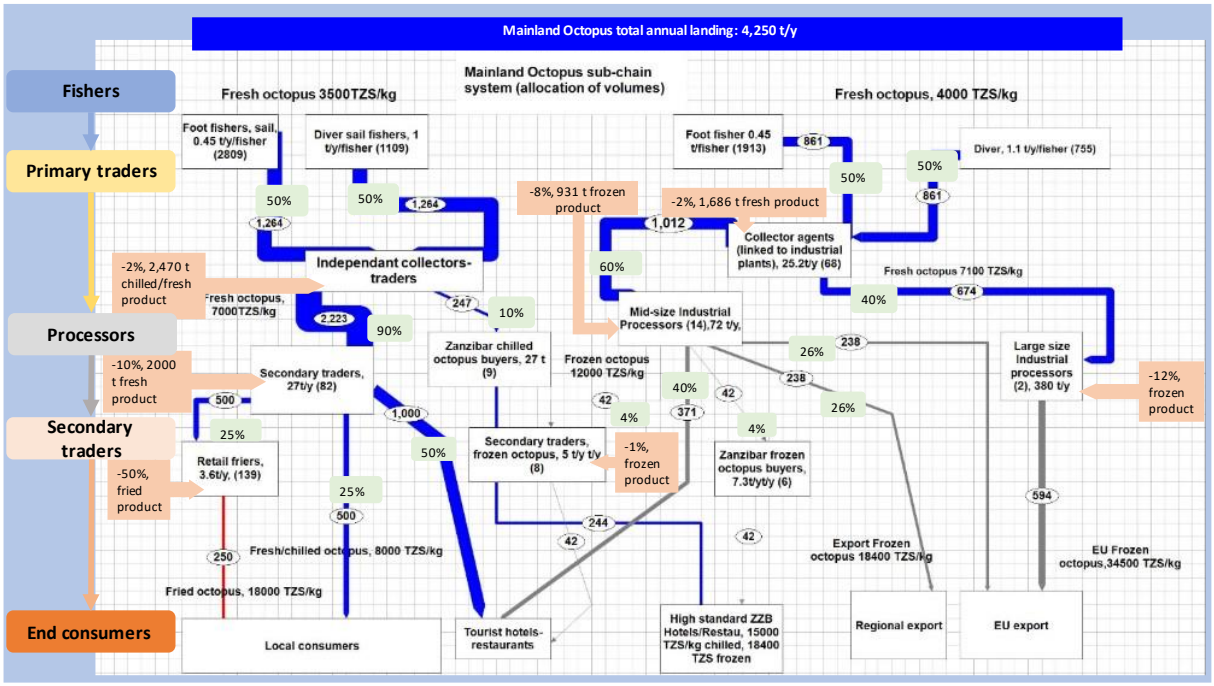
Gini MLT FF3 23/06/22 and jobs



Octopus MLT Final (20/07/22)

Functional analysis

Sources: Sofreco (2018), WWF (2020) + primary data



FFM 2019 (from Yahya Mgawe)

				Weight (kg)	Value (TZS)	Price (TZS/kg)
Frozen octopus	Frozen pweza	Cephalopod	Coral reef and oceanic	1250	8,390,000	6,712.00
Octopus	Pweza	Cephalopod	Coral reef	474430	3,338,007,250	7,035.83

Table (WWF, 2016): Relative market share of different octopus products RELATIVE MARKET SHARE OF OCTOPUS

Sn.	Product	per cent
1.	Fresh / chilled, frozen and cured octopus sold in local and domestic markets	50
2.	Fresh / chilled octopus in regional markets	10
3.	Frozen octopus in global and international markets	40

Change in prices. And in actors But change also in budget, eg fishers, collector, Arianna's data + May 2022

Actor categories

Table: List of octopus sub-chain in Mainland, actors, operations and main attributes used in AFA (Update 18/04/22)

List of acronyms	*Operation Name*	*Actor Name*	*Product*		*Description*	
PFO1M	*Foot O1 fishers*	*O1 foot fishers 1*	*Fresh O1 3500 TZS/kg*	*0.45 t/y*	*Artisanal Foot fisher, pays transport boat*	

PFO2M	*Foot O2 fishers*	*O2 foot fishers 1*	*Fresh O2 4000 TZS/kg*	*id*	*Artisanal Foot fisher, small boat shared*	
PDO1M	*Diver O1*	*O1 dive fishers*	*Fresh O1 3500 TZS/kg*	*1.14 t/y*	*Artisanal Diver fisher, pays transport boat*	
PDO2M	*Diver O2*	*O2 dive fishers 140222*	*Fresh O2 4000 TZS/kg*	*id*	*Artisanal Diver fisher, small boat shared*	
CPOM1	*Collector O1*	*Collector freezer O1*	*Fresh O1 at 3500 TZS/kg sold at 7000 TZS/kg*	*FFM price, also sells to ZZB 25t*	*Independent, Collector, transport boat, ice., organize transport to FFM*	*Additional income provided by fishers (negative cost in serrvice in AFA*
CPOM2	*Collect agent O2*	*Collector agent O2*	*Fresh O2 at 4000 TZS, sells Chilled O2 at 7100 TZS*	*25.2t*	*Independent but exclusive processers. Ice provided by processers.*	
C2SOM	*Trader O*	*Trader 2 O*	*Chilled O1 at 7000 TZS/kg Sells Chilled O1 at 8000 TZS/kg and Chilled OT at 11000 TZS/kg)*	*27t*	*Independant trader at FFM, ice, stall. Sells Chilled Octopus to various actors, 2 prices*	
CSOMZ	*Trader O MZ*	*Trader O MZ*	*Buys Chilled O at 7000 TZS/kg, sells Chilled 15000 TZS/kg*	*To check, 27 t*	*Independent traders acting between the FFM and Zanzibar*	
TROM	*Retail frier O*	*Retail frier O 1*	*Chilled O2 at 8000 TZS/kg, sells Fried at 18000 TZS/kg*	*3.6*	*Women, in the streets or FFM*	*50% yield*
TFOM	*Process-freezer 1O1*	*Process-freezer O*	*Chilled O2 at 7100 TZS/kg, sells Frozen O to tourists at 18500 TZS or traders at 12000*	*To check, sales to traders in FFM, and hotels in Dar ?72 t*	*Mid size factories*	
TEOM	*Process-freezer 1O1*	*Process-freezer Ex O*	*Chilled O2 at 7100 TZS/kg, export Frozen O EU to EU at 34500 TZS and Frozen O RE at 18400 TZS/kg*	*72 t*	*Mid size factories, quality, selling to exports. If sales to local markets, enters in the TFOM*	
TEO2M	*Process-freezer ex big O2*		*Chilled O2 at 7100 TZS/kg, export Frozen O EU to EU at 34500TZS*	*380 t*	*Big size factories, high quality, exclusive to EU Price vs Coleacp ? FOB ?*	
UTOM		*U tourist O*	*Chilled O at 11000 TZS/kg and Frozen O at 18400 TZS/kg*		*In tourist hotels, restaurants in ML*	
ULOM		*User local O*	*Chilled O at 8000 TZS/kg*		*Local consumption*	
UEEOM		*Export O EU*	*Frozen O EU at 34500 TZS/kg*		*Legal export to EU*	
UEROM		*Export O R*	*Frozen O RE at 18400 TZS/kg*		*Legal export to African region*	
UTOZ		*User Tourist O Z*	*Chilled O at 15 TZS/kg Frozen at 18400*		*In tourist hotels, restaurants in Zanzibar*	

UFiOM		*User fried O*	*Fried O 18000 TZS/Kg*		*In the streets or local restaurants*	
CSFOM			*Frozen O at 12000; sells at 18400*		*Buys from plant*	
CSFOMZ			*idem*			

Primary sector – Fishing systems

Fishers			**nb of trips/m**	**Nb of month**	**per year**										
octopus foot fishers Songo Songo					**150**	days/y		**cost/t**		**PFOM1 and 2**					
	basis														
catch in						3	kg/d	6	octopus						
kg															
price		1500	5000	**3500**	hypo										
Catch in kg			450	per year	0.45	t/y			50-100	kg/month		**4.6875**	**3 kg/day**		
Income in TZS			1575000	1.575											
Landing fees								1	0.2475						
Auction fees															
BMU fees															
						%		per t	per y						
Net income in TZS			**per year**		**1.575**	100	per t-->	3.50	1.575	131250	per month	57.0652174			
variable costs (consumables)						**#DIV/0!**		0.59	0.267						
fuel	no								0						
bait	no								0						
accessories						93333.3		0.09	0.042						
transport boat			500/kg octopus			500000.0		0.50	0.225	not in O1					
profit to be shared	**in this case, before fixed costs**					0.0		**3**	1.308						
fixed costs					**0**	**0.0**		0	0						
repairs	engine					0.0		0	0						
maintainance	boat					0.0		0	0						
accessories	generator, lamps..					0.0		0	0		and skipper				
									0						
licensing				25000/y		55556		0.06	0.025						
Total inputs (intermediate costs)					**0**	**0.0**		**0.00**							
									per year	per m	in USD/m				
Gross added value	**Net income -variable costs - fixed costs**							**2.85**	**1.28**	**0.106917**	**46.49**				

Fishers			**nb of trips/m**	**Nb of month**	**per year**										
octopus divers fishers Songo Songo										**PDOM**					
	basis					240	days per y								
catch in	kg/d		4.75												
kg								1.14	t/y	arianna					
price		1500	5000	**4000**	hypo			4.56	income/y MTZS						
Catch in kg				per year	**1.14**	t/y									
Income in TZS				**4.56**	**MTZS**										
Landing fees								1	0.2475						
Auction fees															
BMU fees															
						%									
Net income in TZS					**4.56**	100	per t-->	4.00	4.56						
variable costs (consumables)											and skipper :	0.15MTZS/t/y			
fuel	no											0.171			
bait	no														
accessories						100000.0		0.09	0.1						
transport boat			500/kg octopus			500000.0		0.50	0.57						
licensing fisher								0.03	0.0285						
profit	**in this case, before fixed costs**					0.0		**3.39**	3.8615						
									MTZS/m	USD/m					
Gross added value	**Net income -variable costs - fixed costs**							**3.39**	**0.282273**	**123**					

Traders – collectors

Collector/trader									
Songo Songo, sells to FFM					**CPOM1**	2.3% losses			
	average vol/m		**2000**	in kg		**25**	**t/y**	**25**	
	purchasing price TZS/kg		**3500**			24.425	t/y sold		
	selling price		**7000**	**FFM ref**	14.00	monthly income MTZ			
	income product		**13.68**	in MTZS		**164.1**	**MTZS/y**		
	service paid by fishers		**0.00**	cancelled in purchasing		**0.0**			
	fishers	500/kg							
						income per t in MTZS		**7.339**	
					with add	service paid fishers			
				cost				**cost in MTZ/t**	
				skipper	500/kg			0.5	
				assistant	250/kg			0.25	MTZS/y
	arianna 395 l/t			fuel		2200/l		0.869	21.2
	326 l/t			purchase raw mat				3.5	9228.4
				ice	200/kg			0.2	
				shipping	100/kg			0.1	
				transport to	4000-5000?	WWF 2020		0.4	
				electricity		**to check**		**0.1**	
				packaging				0.012	
				total cost				5.931	
				Gross added value				**1.408**	
				licences	50000/y		corr	0.02	
			district taxes	BMU taxes	500/kg			0.5	
				boat rent or depreciation				0.8	
				domestic freezer depreciation			WWF 2020	0.0356	
				net profit	**MTZs/t**			**0.088**	
				net profit/y				2.200	
				net profit/m/owner				0.183	
				net profit/m/owner in USD				**79.710**	

Secondary traders – retailers

trader in FFM								
20/11/21 dar				**CSOM**				
average vol/m				in kg		**46**	**t/y**	**47**
purchasing price	**5000-6500**		5750					
selling price	7000 to processing, 8000 to others					monthly income MTZ		
income	50/50			in MTZS		**347.1**	**MTZS/y**	
						7.5	**MTZS/y/t**	
								cost/t
				labour				0
				auction				0
				purchase				5.75
				ice				0
				bag				0
				distict taxes	3% levy			0.225
				licenes				0
				transports				0
				total cost	0			0
				loss			**% loss purch**	0
				total	0			0

Processors -freezers

- operating costs described in WWF (2020) and used as secondary data in AFA. + primary data

Table 18 Turnover (sales) and cost of octopus production for export

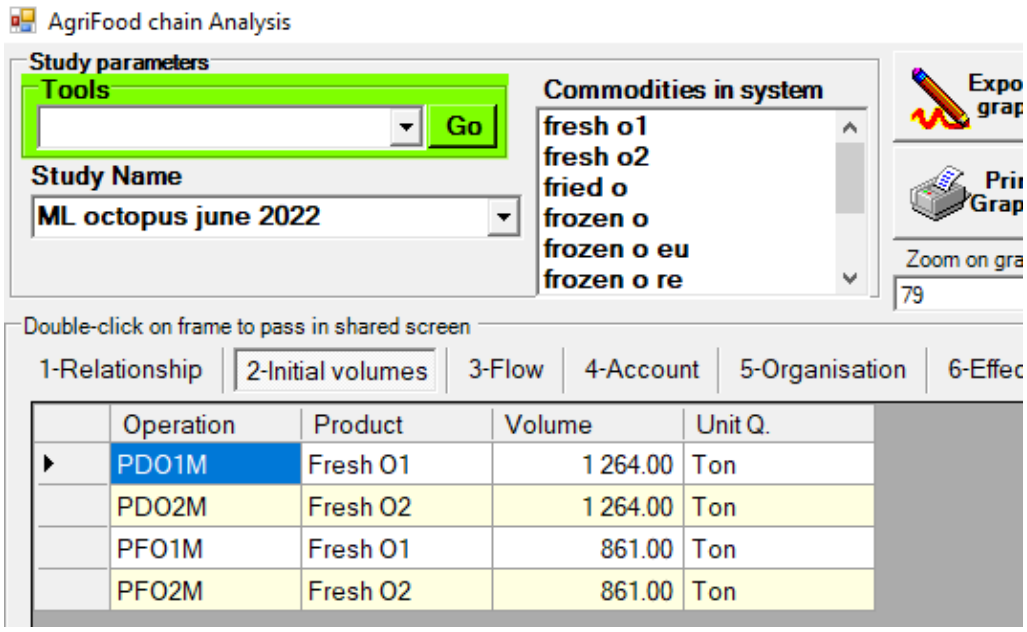
Items	Amount (TZA)
Average kilograms of octopus purchased per month - 6000 kg	
Yield factor (output doing processing) 5% is lost remaining with 5,700 kg	
Turn over (sales) (US$ 10 / kg = TSh. 23000 / kg)	**131,100,000**
Raw material costs (Factory price) TSh. 7000 / per kg	42,000,000
Consumables	
Fuel and oil per month	1,500,000
Ice per month	3,000,000
Water per month	150,000
Electricity per month	3,000,000
Packaging materials per the 5,700 kilograms	6,000,000
Uniforms average cost per month	60,000
Shipping cost, one shipment per month	5,750,000
Food for workers per month	300,000
Maintenance per month	500,000
Labour costs, Salaries per month	**3,000,000**
Internal Transportation costs per month	480,000
Marketing and selling costs per month	5,000,000
Other operating costs per month	1,050,000
Depreciation cost monthly equivalent	**22,000,000**
Royalty (US$ 0.8 per Kg)	**11,040,000**
Tax, monthly average	**600,000**
Total costs	**105,430,000**
Net profit	**25,670,000**

Source: WWF 2020

Economic analysis Octopus MLT 18/06/22 update

Actors/vol/price flows

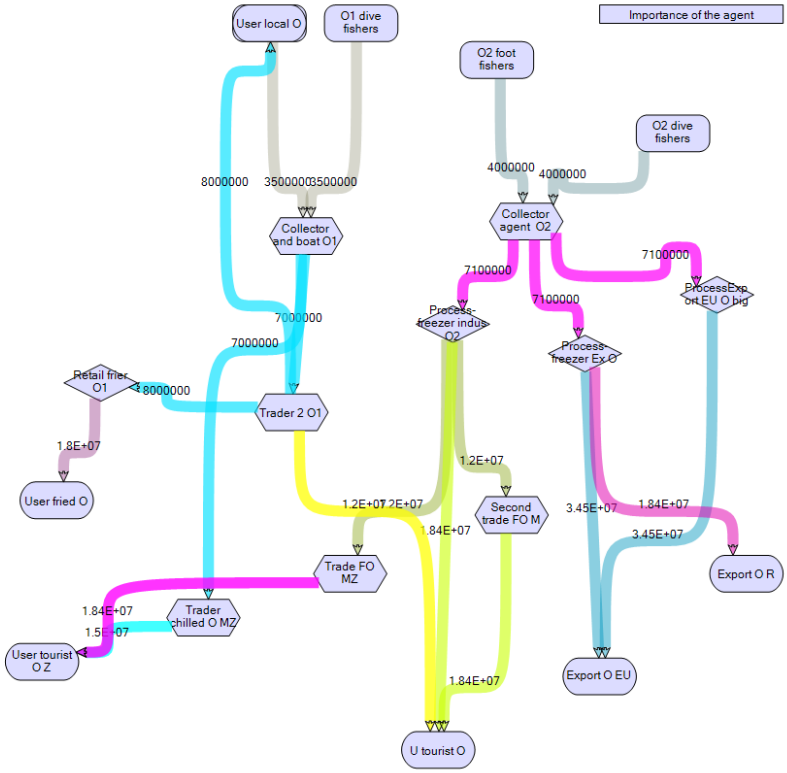
Initial volumes:

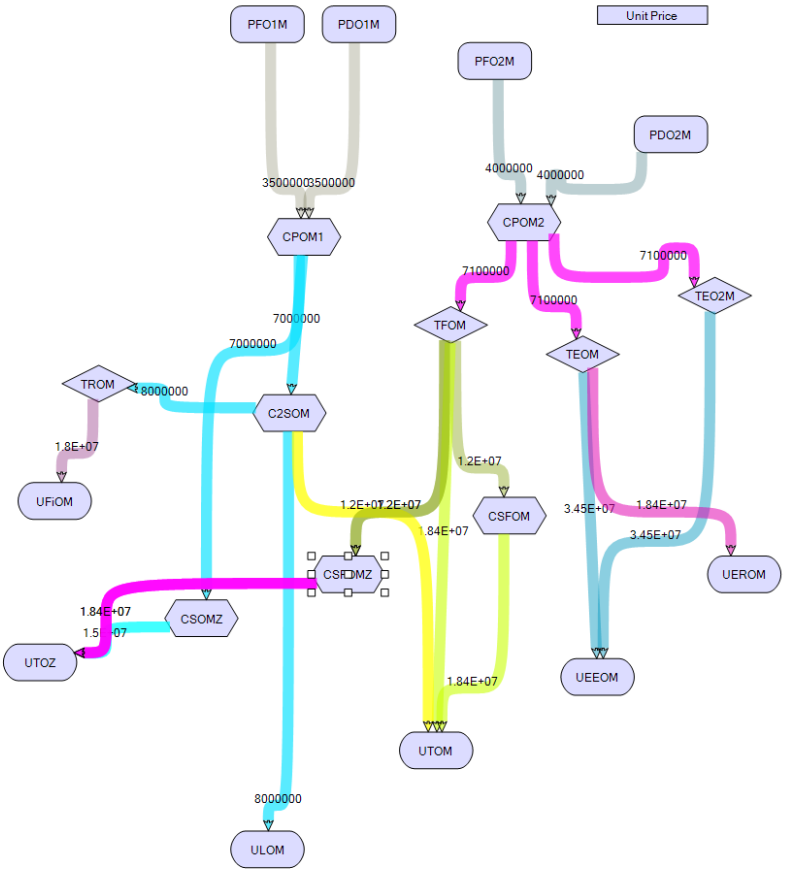


Idem study June corr

Arianna	41%	PFOM	1721.25	price 3500	Fresh O1	50.00	861
Initial nat volum			0	price 4000	O2	50.00	861
4250							
		PDOM	2528.75	price 3500	Fresh O1	50.00	1264
				price 4000	O2	50.00	1264

Flows:




Unit Price
PFO1M
PDO1M
PFO2M
PDO2M
CPOM1
CPOM2
TFOM
TEOM
TEO2M
TROM
C2SOM
UFiOM
CSFOM
CSFOMZ
CSOMZ
UTOZ
UTOM
UEEOM
UEROM
ULOM
4000000
4000000
7100000
7100000
7100000
7000000
7000000
8000000
1.8E+07
1.2E+07
1.2E+07
1.2E+07
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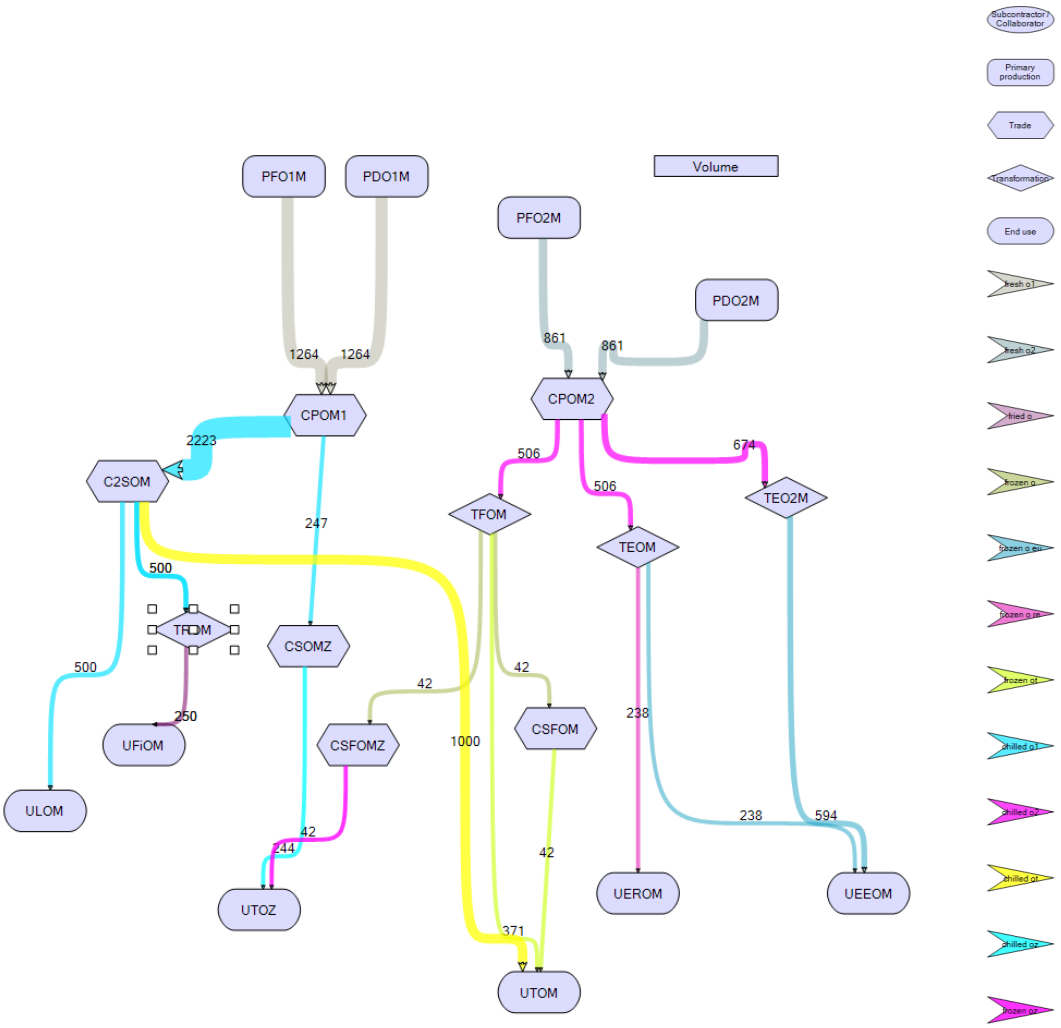
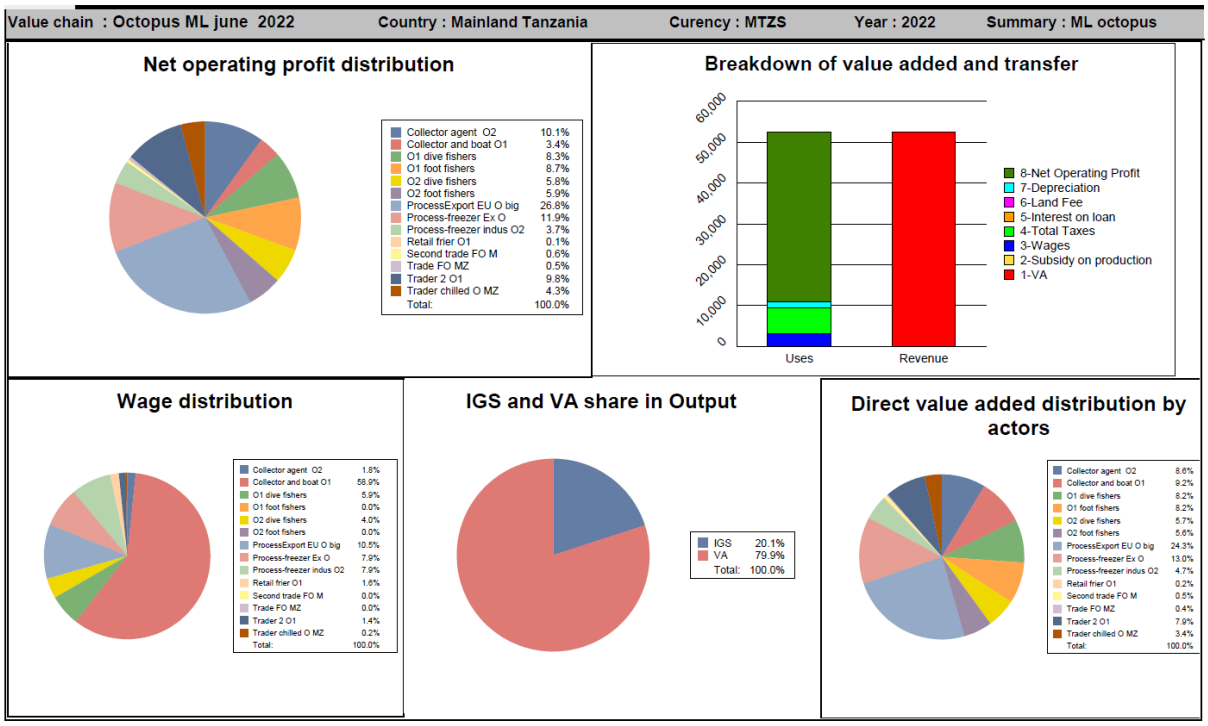
3.45E+07
1.84E+07
1.84E+07
8000000



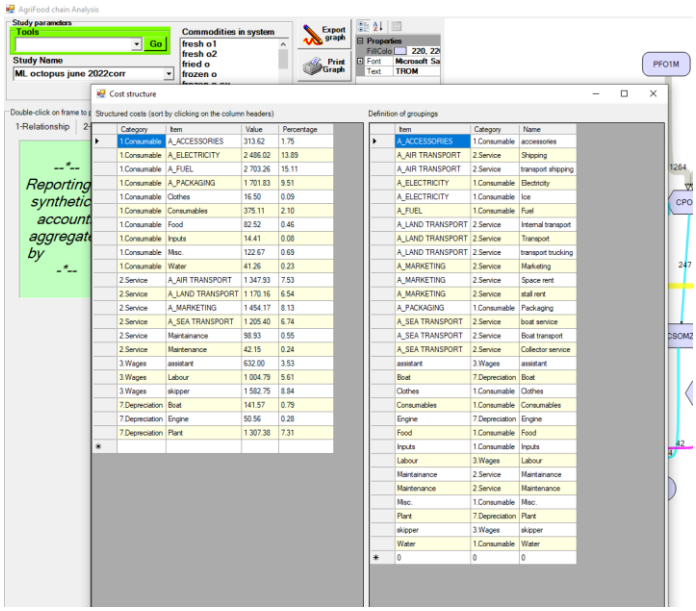
Profitability

Table: Detail accounts (AFA)

Indicators by Actors and	estimations of number of actors												
Actor	Output	Subsidy	IGS	VA	Wages	Tax	Interest	Land fe	Depreci	Net Ope	Volume Inpu	Annual	Nb of Actors
O1 foot fishers	4 424	0	114	4 310	0	695	0	0	0	3 615	1 264.00	0.45	2 809
Collector and boat O1	17 289	0	12 461	4 828	1 896	1 315	0	0	192	1 426	2 528.00	25.00	101
Process-freezer indus O2	7 836	0	5 364	2 472	253	51	0	0	618	1 550	506.00	72.00	7
O1 dive fishers	4 424	0	114	4 310	190	695	0	0	0	3 425	1 264.00	1.14	1 109
Trader 2 O1	20 006	0	15 845	4 161	47	70	0	0	0	4 044	2 223.00	27.00	82
Retail frier O1	4 501	0	4 391	111	50	10	0	0	0	51	500.00	3.60	139
Collector agent O2	11 969	0	7 479	4 491	57	270	0	0	0	4 164	1 722.00	25.20	68
Process-freezer Ex O	12 574	0	5 775	6 799	253	981	0	0	618	4 947	506.00	72.00	7
Trader chilled O MZ	3 657	0	1 866	1 790	5	8	0	0	0	1 777	247.00	27.00	9
O2 foot fishers	3 444	0	508	2 936	0	474	0	0	0	2 462	861.00	0.45	1 913
O2 dive fishers	3 444	0	439	3 005	129	474	0	0	0	2 402	861.00	1.14	755
ProcessExport EU O big	20 510	0	7 773	12 736	337	1 226	0	0	71	11 102	674.00	380.00	2
Second trade FO M	768	0	521	247	2	8	0	0	0	237	42.00	5.00	8
Trade FO MZ	768	0	534	234	2	8	0	0	0	224	42.00	7.30	6
VALUE CHAIN	65 606	0	13 176	52 430	3 220	6 284	0	0	1 500	54 603	----------	7 016	



Cost structures



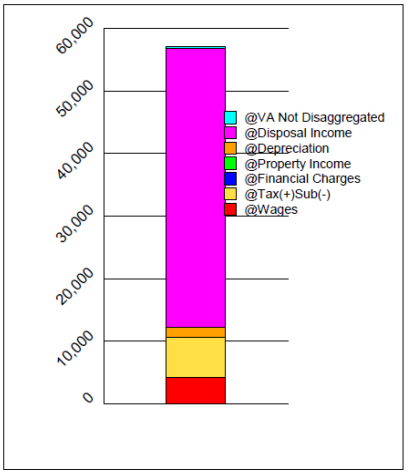
Calculation of effects

Sea transport : boat transport of products or passengers (fishers), include collector service. Main cost is fuel and wages. → use in table in/out of coeff of water transport and petrol manufacture for level 2.

Direct and indirect effects (MTZS)

	Direct effects	Indirect effects	Total effects
Imports	0	4 999	4 999
IC not disaggregated		3 517	3 517
Value added			
Wages	3 220	1 012	4 232
Taxes	*6 284*		
Subsidy	*0*		
Tax (+) Sub (-)	6 284	190	6 475
Interest on loan	0	0	0
Land Fee	0	0	0
Depreciation	1 500	0	1 500
Net Operating Profit	41 427	3 225	44 652
VA not disag.		232	232
VA Total	52 430	4 660	57 090

Total Value Added distribution (MTZS)



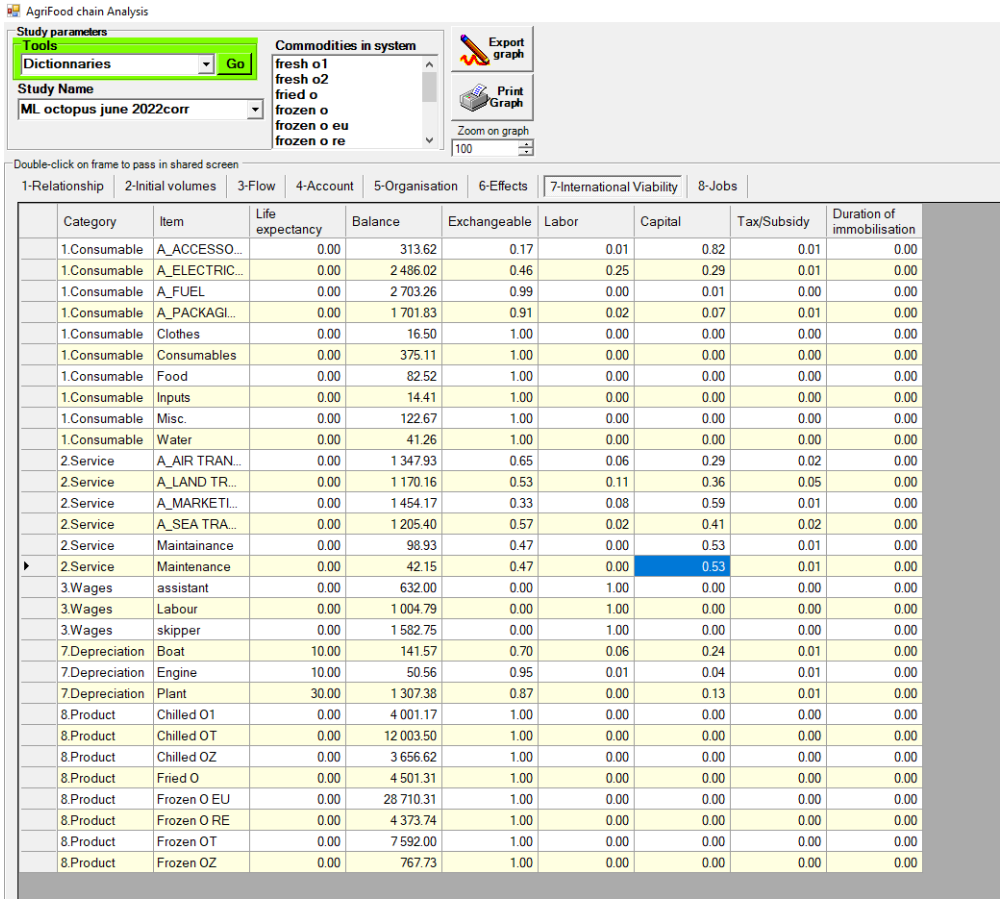
Macro-économic effects indicators

VC VAT/GDP	0.0%	
VC VAT/Vc Output	87.0%	with Vc Output 65,606.38 MTZS
VC VAT/Agricutural GDP	0.2%	
VC Tot. Import/ N. Imports	0.0%	
VC Export/Total Export	0.1%	
VC Trade Balance	28 084.9	
VC Trade Balance/ N Imports	0.1%	
VC T. Net Transfer/State budget	0.0%	
VC T. Wages/N.Wages	0.1%	
VC Tot. Disposal Income/Nat. Incom	0.0%	

Reference

Agricultural GDP	37 192 537	MTZS
Disposal income	115 340 321	MTZS
GDP	139 641 854	MTZS
National Export	22 394 010	MTZS
National Import	23 713 761	MTZS
State budget	23 502 700	MTZS
Value Chain Export	33 084	MTZS
Wages	7 006 311	MTZS

International viability



Category	Item	Life expectancy	Balance	Exchangeable	Labor	Capital	Tax/Subsidy	Duration of immobilisation
1.Consumable	A_ACCESSO...	0.00	313.62	0.17	0.01	0.82	0.01	0.00
1.Consumable	A_ELECTRIC...	0.00	2 486.02	0.46	0.25	0.29	0.01	0.00
1.Consumable	A_FUEL	0.00	2 703.26	0.99	0.00	0.01	0.00	0.00
1.Consumable	A_PACKAGI...	0.00	1 701.83	0.91	0.02	0.07	0.01	0.00
1.Consumable	Clothes	0.00	16.50	1.00	0.00	0.00	0.00	0.00
1.Consumable	Consumables	0.00	375.11	1.00	0.00	0.00	0.00	0.00
1.Consumable	Food	0.00	82.52	1.00	0.00	0.00	0.00	0.00
1.Consumable	Inputs	0.00	14.41	1.00	0.00	0.00	0.00	0.00
1.Consumable	Misc.	0.00	122.67	1.00	0.00	0.00	0.00	0.00
1.Consumable	Water	0.00	41.26	1.00	0.00	0.00	0.00	0.00
2.Service	A_AIR TRAN...	0.00	1 347.93	0.65	0.06	0.29	0.02	0.00
2.Service	A_LAND TR...	0.00	1 170.16	0.53	0.11	0.36	0.05	0.00
2.Service	A_MARKETI...	0.00	1 454.17	0.33	0.08	0.59	0.01	0.00
2.Service	A_SEA TRA...	0.00	1 205.40	0.57	0.02	0.41	0.02	0.00
2.Service	Maintainance	0.00	98.93	0.47	0.00	0.53	0.01	0.00
2.Service	Maintenance	0.00	42.15	0.47	0.00	0.53	0.01	0.00
3.Wages	assistant	0.00	632.00	0.00	1.00	0.00	0.00	0.00
3.Wages	Labour	0.00	1 004.79	0.00	1.00	0.00	0.00	0.00
3.Wages	skipper	0.00	1 582.75	0.00	1.00	0.00	0.00	0.00
7.Depreciation	Boat	10.00	141.57	0.70	0.06	0.24	0.01	0.00
7.Depreciation	Engine	10.00	50.56	0.95	0.01	0.04	0.01	0.00
7.Depreciation	Plant	30.00	1 307.38	0.87	0.00	0.13	0.01	0.00
8.Product	Chilled O1	0.00	4 001.17	1.00	0.00	0.00	0.00	0.00
8.Product	Chilled OT	0.00	12 003.50	1.00	0.00	0.00	0.00	0.00
8.Product	Chilled OZ	0.00	3 656.62	1.00	0.00	0.00	0.00	0.00
8.Product	Fried O	0.00	4 501.31	1.00	0.00	0.00	0.00	0.00
8.Product	Frozen O EU	0.00	28 710.31	1.00	0.00	0.00	0.00	0.00
8.Product	Frozen O RE	0.00	4 373.74	1.00	0.00	0.00	0.00	0.00
8.Product	Frozen OT	0.00	7 592.00	1.00	0.00	0.00	0.00	0.00
8.Product	Frozen OZ	0.00	767.73	1.00	0.00	0.00	0.00	0.00

Category	Item	Life time	Balance	Tradable	Labor	Capital	+Txv / -Sub	Revolv	OutM	InpM	LabM	CapM	OutP	InpP	LabP	CapP
Intermediate Totals								0.00	65 606	10 088	4 237	3 569	65 606	9 983	4 237	3 569

TRANSFERS

	Tax/Sub on tradable		Other transfer		Interest on lease	Total
	Output	Input	Tax on Op.	Subs. on Op.		
Prod +Sub/-Tax Output	0					
Prod -Sub/-Tax Input		0				
Tax on Operation			6 284			
Subs on Operation				0		
Financial Charge					0	
Total Transfert Market	0	0	6 284	0	0	6 284

VALUE AT PARITY PRICES

	Tradable		Domestics Factors		Transfers	Profit
	Output	Input	Wage	Capital		
Market price	65 606	10 088	4 237	3 569	6 284	41 427
Parity price	65 606	9 983	4 237	3 569		47 817
Divergence	0	105	0	0	6 284	-6 390

ACCRONYMS

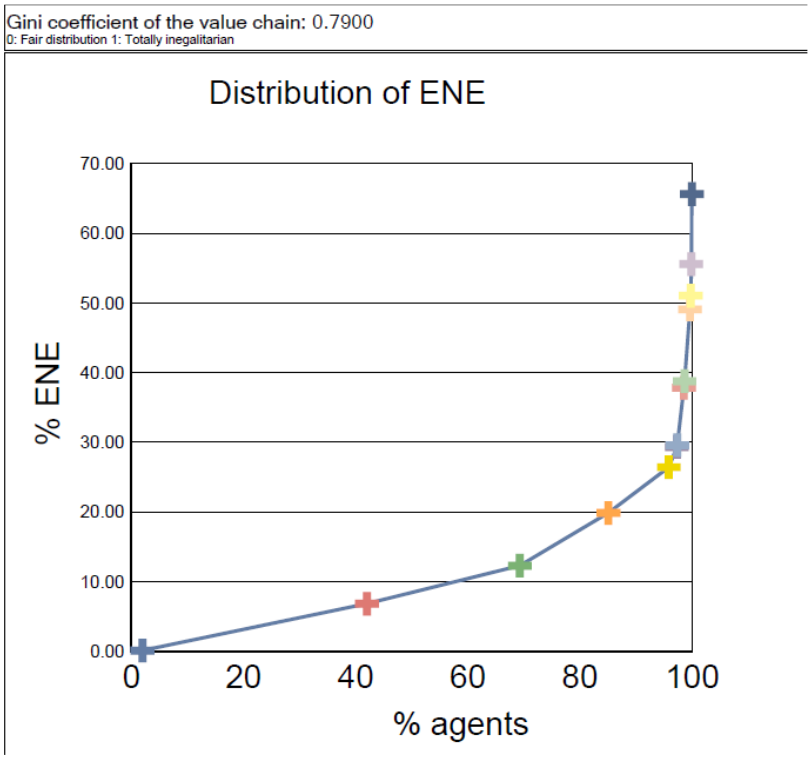
+Txv / -Sub Ad Valorem Taxe or Subisidy on Tradable

Term	Does not apply
OutM	Output value at Market price
InpM	Intermediate Good and Services value at Market Price
LabM	Labor value at Market price
CapM	Capital value at Market Price
OutP	Output value at Parity Price
InpP	Intermediate Good and Services value at Parity Price
LabP	Labor value at Parity Price
CapP	Capital value at Parity Price

INDICATORS

Dometic Ressource Cost	0.08
Nominal Protection Coefficient	1.00
Effective Protection Coefficient	1.00
Equivalent producer subsidy	-0.10

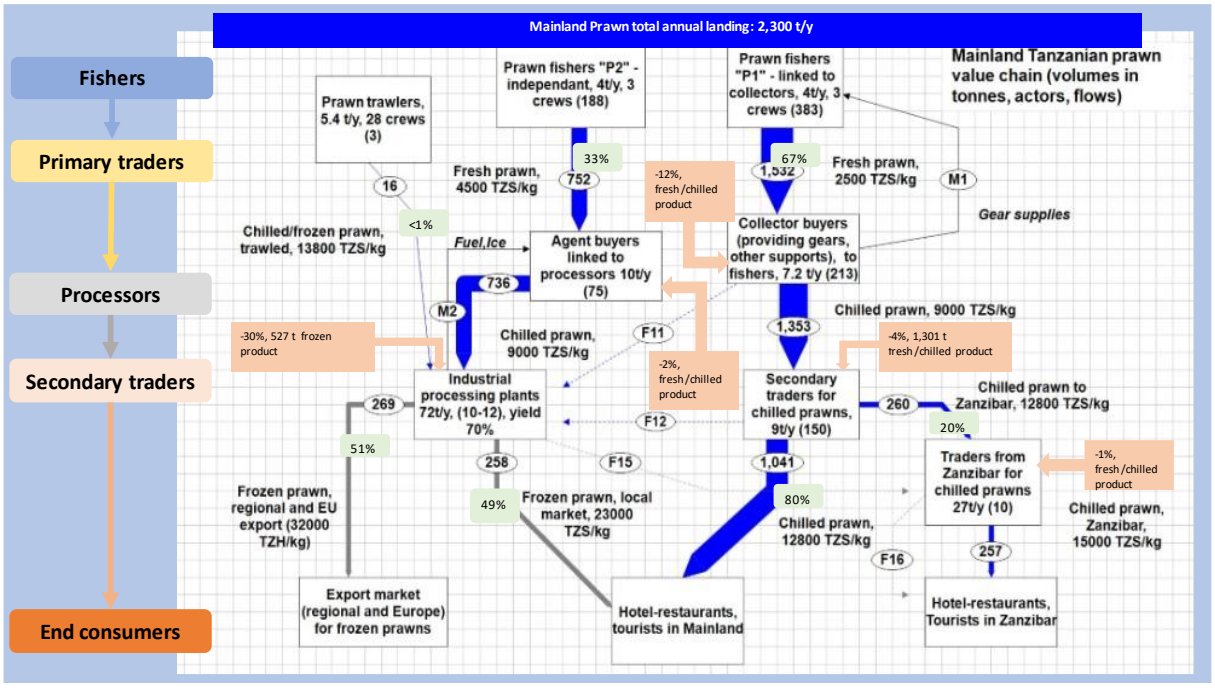
Job analysis



Prawn MLT Final (20/07/22)

Functional analysis

Sources: Sofreco (2018) , and the Prawn Fishery Management (United Republic of Tanzania, URT draft 2021) and primary data



Actor categories

Table: Prawn actor categories

Operation abbr.	Operation Name	Actor Name	Product		
PAPM1	artisanal P1	P artisanal fisher P1	Fresh P1	Sells at 2500 TZS/kg,	Artisanal, fees paid by collectors
PAPM2	artisanal P2	P artisanal fisher P2	Fresh P2	Sells at 4500 TZS/kg	Artisanal, boat shared
PTPM	P trawler	P trawler P3	Frozen P	At 13800 TZS/kg	Industrial, trawler, fees paid by processing plants, only 3
CPPM1	Collector P1	Collector freezer P1	Buys Fresh P1 at 2500 TZS/kg, sells at Chilled P at 9000 TZS/kg		Independant collectors, supply fieg=hers with gears, ice, organize ytransport to FFM
CPPM2	Collect agent P2	Collector agent P2	Buys Fresh P2 at 4500 TZS and sells Fresh P2 at 6000 TZS		Agent linked to processing plants, fees paid
TFPM	Process-freezer 1O1	Process-freezer P	Buys Fresh P2 at 6000 TZS and and sells frozen at 13800 TZS/kg		Mid size, processors, could be on coastal areas
TEPM	Process-export P	Process-freezer Ex P	Buys Frozen at 13800 and sells for export at 22750 TZS/kg	To check	Mid size. Processors, Export licence. In Dar
CSPM	Trader 2 P	Trader 2 P	Buys Chilled P at 9000 TZS/kg and sells Chipped P at 12800 TZS/kg		Independant trader, in FFM
CSPMZ	Trader P MZ	Trader P MZ	Buys Chilled P at 12800 TZS and sells to ZZB at 15000 TZS/kg	To check	Independant tarder between FFM and ZZB
UTPM	Tourist end user	User tourist P	Buys Chilled P at 12800 and Frozen P at 13800 TZS/kg		Hotel, restaurants in Mainland
UTPMZ	Tourist end user	User tourist P Z	Buys Chilled P at 15000 TZS in ZZB		Hotel, restaurants in Zanzibar
UEEPM	Export to EU	Export P EU	At 22750 TZS/kg Frozen P EU		
UERPM	Export to regional	Export P R	Frozen P R TZS/kg		

CSPM : in FFM (but low vol. declared, 46 t) so presumably elsewhere, in direct connections to restau, hotels… (30/03/22)

Primary sector – Fishing systems

Many of these canoes are provided by middlemen whose number is also increasing.

- therefore, two subcategories of artisanal fishers were identified:
    - the “PAPM2”, independant, owing their boat, and being paid a higher price than the others per kg prawn (4500 TZS/kg), they also cover the gear cost, etc.
    - the others PAPM1 (the majority now, an hypothesis of 2/3 taken) is almost acting as employees of the collectors CPPM1, who handles tall the operational costs. Fishers are paid a lower price (2500 TSZ/kg) but pay their license and levies.
- the trawlers were also taken into account in the analysis, using the Sofreco’s data (2018), and the annual volume provided in the URT plan (URTMLF 2021).

Fishers			**nb of trips/n**	**Nb of month**	**per year**								
prawn fishers	**P1**	**3**	**16.5**	**5**	**82**	days		**cost/t**		**PAPM1**	**67%**		
fees paid by	**collectors**	basis			**t/y**						in MTZS		
	catch in	kg/day	t/month	t/year						income	**10**		
	kg	**48.5**	**0.8**	**4**		**per year**					cost per y		
							gears	60*3000	**accessories**	gears			
price	if fees cover	2500				**4 t/y**	ropes	**15*15000**		ropes			
		Income in M	TZS		**0 in MTZS**		buoys	20*1000		buoys			
							25000/fisher/year			licensing	0.075		
	Landing fees						BMU	5000/day		levy tax			
	Auction fees						auction ?	60000		depreciation	1.500		
	BMU fees									total cost	0.075		
										Profit	**9.925**		
										profit/y/fisher	**3.308**	**3.2 for AFA**	
										profit/m/fisher	0.276		
									in TZS	Profit/m/fisher	275694		
									in USD	Profit/m/fisher	119.9		

Fishers			**nb of trips/n**	**Nb of month**	**per year**								
prawn fishers	**P2**	**3**	**16.5**	**5**	**82**	days		**cost/t**		**PAPM2**	**33%**		
boat shared by fishers		basis			**t/y**						in MTZS		
	catch in	kg/day	t/month	t/year						income	**18**		
	kg	**48.5**	**0.8**	**4**		**per year**					cost/month*12		
price	if direct	4500					gears	60*3000	**accessories**	gears	2.160		
				0		**t/y**	ropes	**15*15000**	**5.100**	ropes	2.700		
		Income in M	TZS		**0 in MTZS**		buoys	20*1000		buoys	0.240		
							25000/fisher/year			licensing	0.075		
	Landing fees						BMU	5000/day		levy tax	4.920		
	Auction fees						auction ?	60000		depreciation	1.500		
	BMU fees			boat 4 m wood		purchased at	**0.6 MTZS**			**total cost**	**10.095**		
				life span : 2.5 y									
										Profit	**7.905**		
										Profit/y/fisher	**2.635**	**2.55 for AFA**	
										Profit/m/fisher	0.220		
									in TZS	Profit/m/fisher	219583		
									in USD	Profit/m/fisher	95.471		

Table 13: Profitability Analysis of integrated commercial fishing for export of frozen shrimps

Characteristics	**Catches per month (Kg)**		**Costs (USD)**		
Trawler 25m, 500hp, operated 3.5 months during the 5 months opening period in 2018. 28 members crew. 3 fishing location determined by the government	Prawn		Labour		**SGP (USD)**
	average	8,500	Salaries, provision	0.75	
			Services/Kg		
	Price (USD)	6.00	boat rental	0.10	
	by catch		Input/Kg		
	average	800	Fuel	2.48	
	Max		Packaging	0.60	
	Price	0.90	Taxes/Kg		
	Others		Royalties	0.30	
	Min		Licenses		
	Max		Transport/Kg	0.35	
	Price		Maintenance/Kg	0.50	
			Financial/Kg		
			Losses/Kg		
	Av. Income per month (USD)		**Total cost (USD)**	**Cost (USD)/ K**	
	51,720		43,191	5.08	**1.003**

From Sofreco, 2018

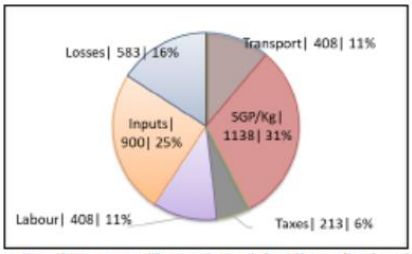
Primary traders – collectors

- These actors operate in the coastal areas.
- Two categories are identified,
    - CPPM1 is independent, acts as middleman (or woman), and handles the fishing costs, the boats, the ice, the transportation to the FFM.
    - CPPM2 acts as an agent of the processing plants, who may provide the ice, the boxes, and contribute to other fees.

Collector Profitability

Table 18: Simplified Profitability Analysis of Shrimp Collector, shrimp on ice to hotel value chain

Characteristics	Catches per month (Kg)		Costs		
collector, based at landing site level, owns dugout canoes and nets, transport prawns on ice to Dar-es-Salaam	Prawns		Labour	408	SGP (inc. Auto-consump-tion)
	average	1,200	self employed (pays on SGP)		
			Services/Kg prawns		
	Price	8,650	boat rental		
	By-catch (sardines)		Input/Kg		
	average		ice	400	
	Max		net	500	
	Price		Taxes/Kg		
	Others		District taxes	208.3	
	Min		Licenses	4.2	
	Max		Transport/Kg	408.3	
	Price		Repairs/Kg		
			Financial/Kg		
			Losses/Kg	583	
			Raw material	5,000	
	Av. income per month		**Total cost**	**Cost / Kg**	
	10,380,000		9,015,000	7,513	**1,138**



Comments:

- the SGP/kg is relatively high for a collector compared to that achieved for other species. The risk linked to shrimp trading (due to potential high losses) explain part of the relatively high capture of gross margin by the collector. The fact that the collector owns boats and nets enables him to pay fishermen a lower price than prevailing price at landing site level and therefore maximise his gross margin per kilo.

Figure 14: Cost structure of shrimp collector, shrimp on ice to hotels value chain

From Sofreco, 2018

Secondary Traders and retailers

- Secondary trader actors operate in the FFM and sells to to local consumers, mainly tourists, in Mainland and in Zanzibar.
- Retailers – friers are also operating but we did not include in the analysis, considering that low volumes of those uses will not change the overall results of the value chain.

Trader Profitability

Table 19: Simplified profitability Analysis of shrimp trader

Characteristics	Catches per month (Kg)		Costs		
Trader based at the Dar-es-Salaam Ferry market, supplies to hotels in Dar-es-Salaam	Prawns		Labour	50	SGP (inc. Auto-consump-tion)
	average	1,500	self-employed, pays on SGP		
			Services/Kg prawns		
	Price	12,800	stall rental	5	
	By-catch (sardines)		Input/Kg		
	average		ice	240.0	
	Max		cool box	1.5	
	Price		Taxes/Kg		
	Others		District taxes	208.3	
	Min		Licenses	3.25	
	Max		Transport/Kg	500.0	
	Price		Repairs/Kg		
			Financial/Kg		
			Losses/Kg	478	
			Raw material	9,550	
	Av. Income per month		Total cost	Cost / Kg	
	19,200,000		16,553,375	11,036	1,764

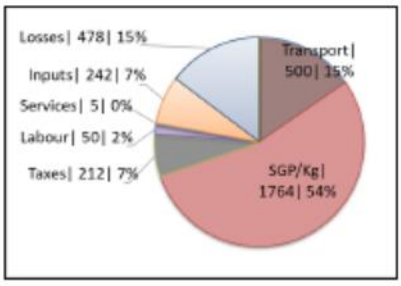


Figure 15:Costs Structure of shrimp trader

Comments:

- As with collectors, traders achieve a relatively high SGP/kg of 1,764 TZS.

- Their major costs are losses and transport (when they deliver to hotels especially for a purchase order of at least 20 kg).

From Sofreco, 2018

Processors

Sofreco (2018) considered two types of processors, these subcategories are represented in our AFA analysis but some data need to be checked (ongoing process):

Small/mid-size processors (as TFPM)
There are about ten small/mid-size processors in Tanzania who process for export and others who sell locally.

Large processors, EU certified (as TEPM)
These processors have their own processing facilities and are certified to export to the EU or to the regional market. They apply HACCP measures and use Individual Quick Frozen (IQF) technology for shrimp. Although their main product is seafood for export, they are increasingly involved in processing (as well as importing) finfish for the local market and selling to the tourist sector.

Processors data from the WWF (2020) (Octopus) and primary data.

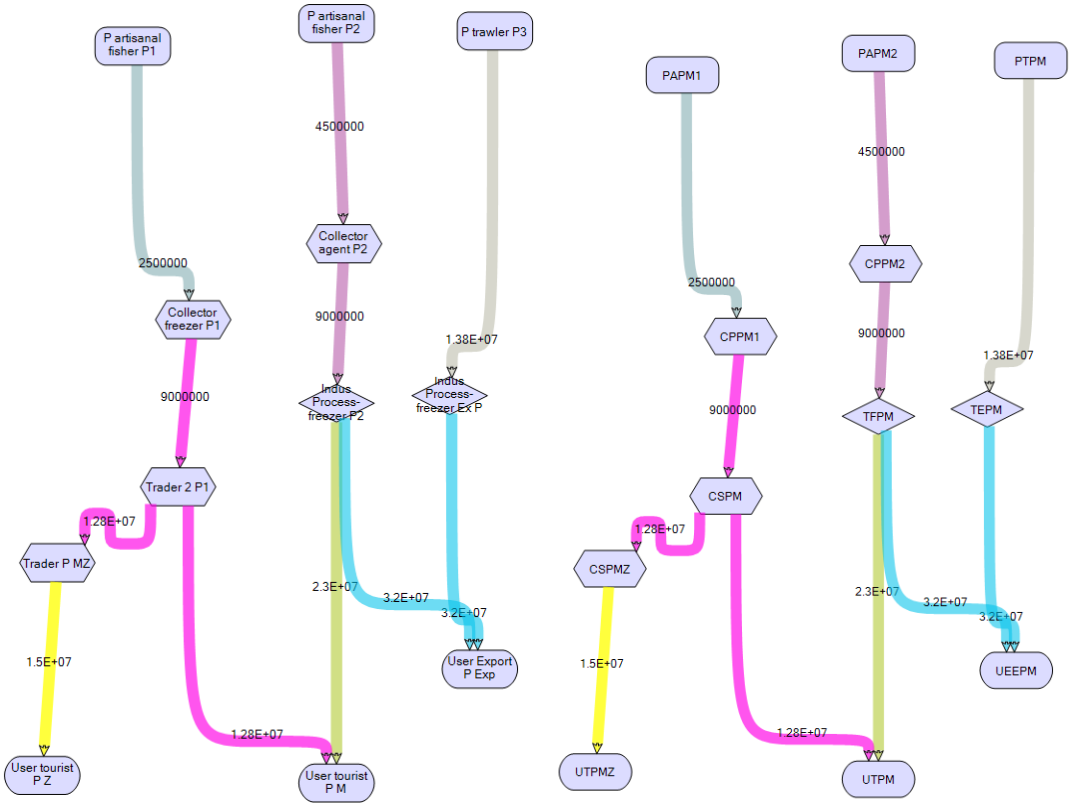
Economic analysis

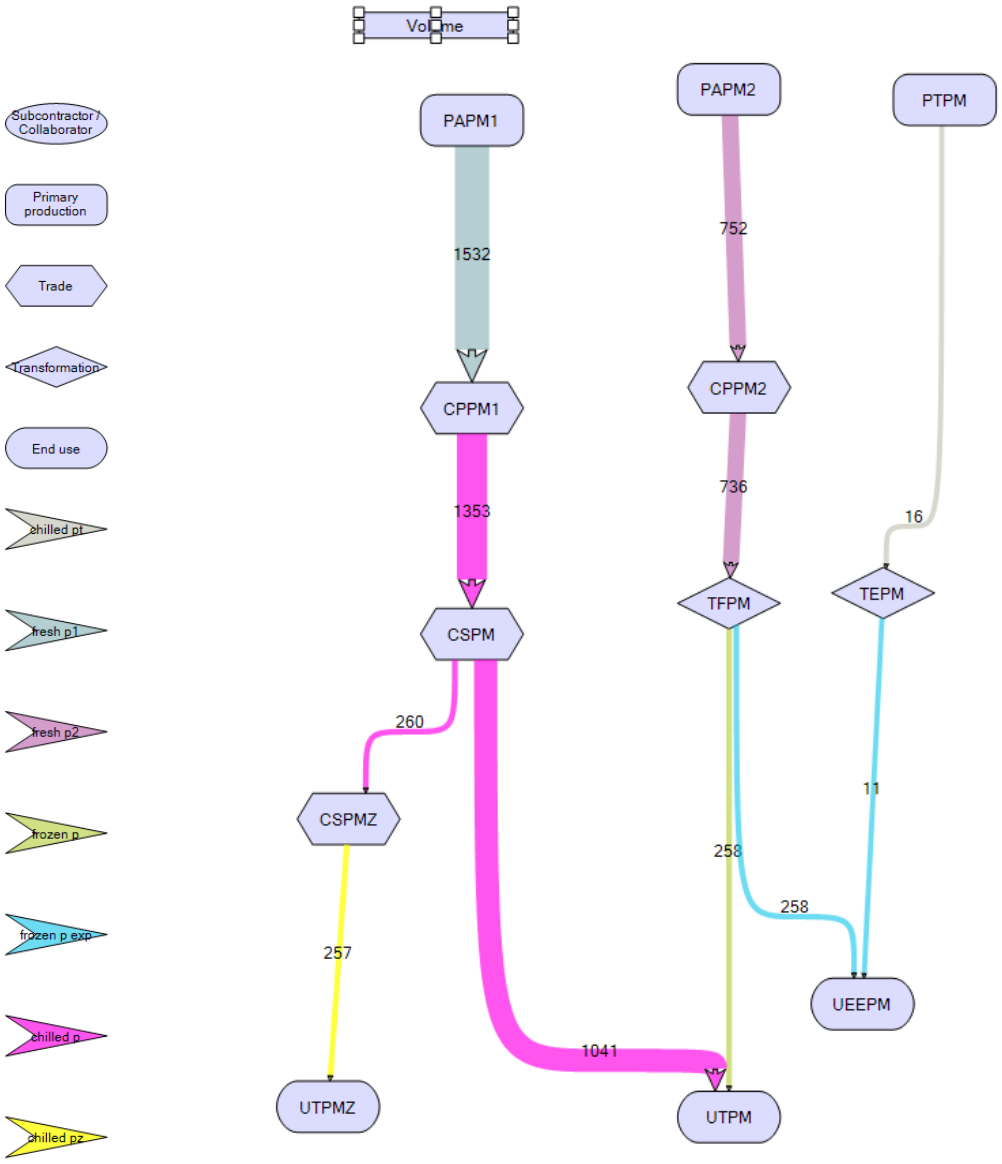
Pricing, actor and volume flows

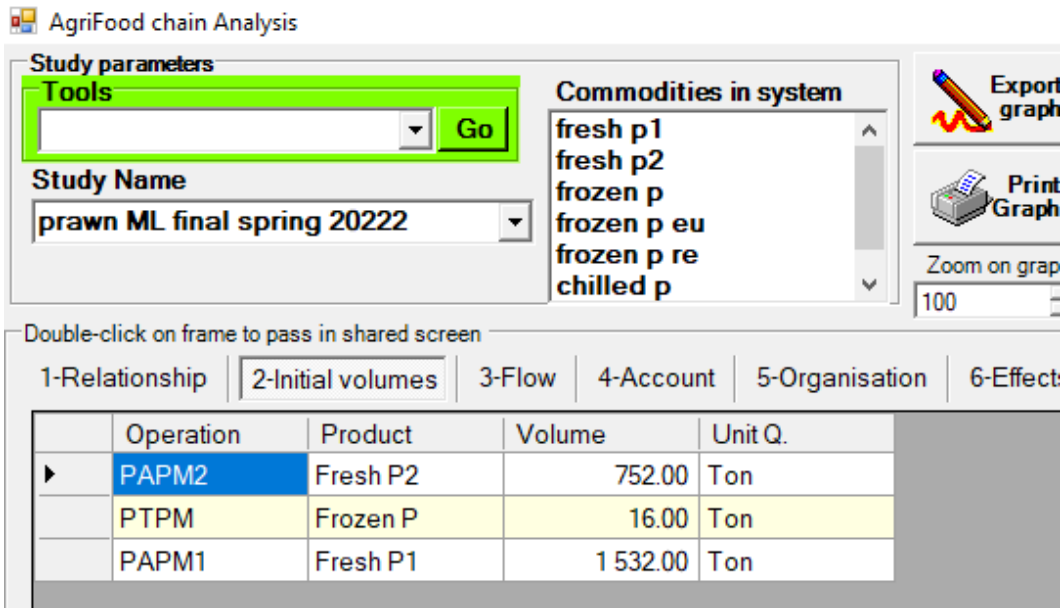
26/06/22

Volume allocations

2300	**hypo Final**
1532	P1
752	P2
16	P3
2300	




Volume
Subcontractor / Collaborator
Primary production
Trade
transformation
End use
chilled p1
fresh p1
fresh p2
frozen p
frozen p exp
chilled p
chilled pz
PAPM1
PAPM2
PTPM
1532
752
CPPM1
CPPM2
1353
736
16
CSPM
TFPM
TEPM
260
11
CSPMZ
258
258
257
UEEPM
1041
UTPMZ
UTPM



Idem 23/06/22

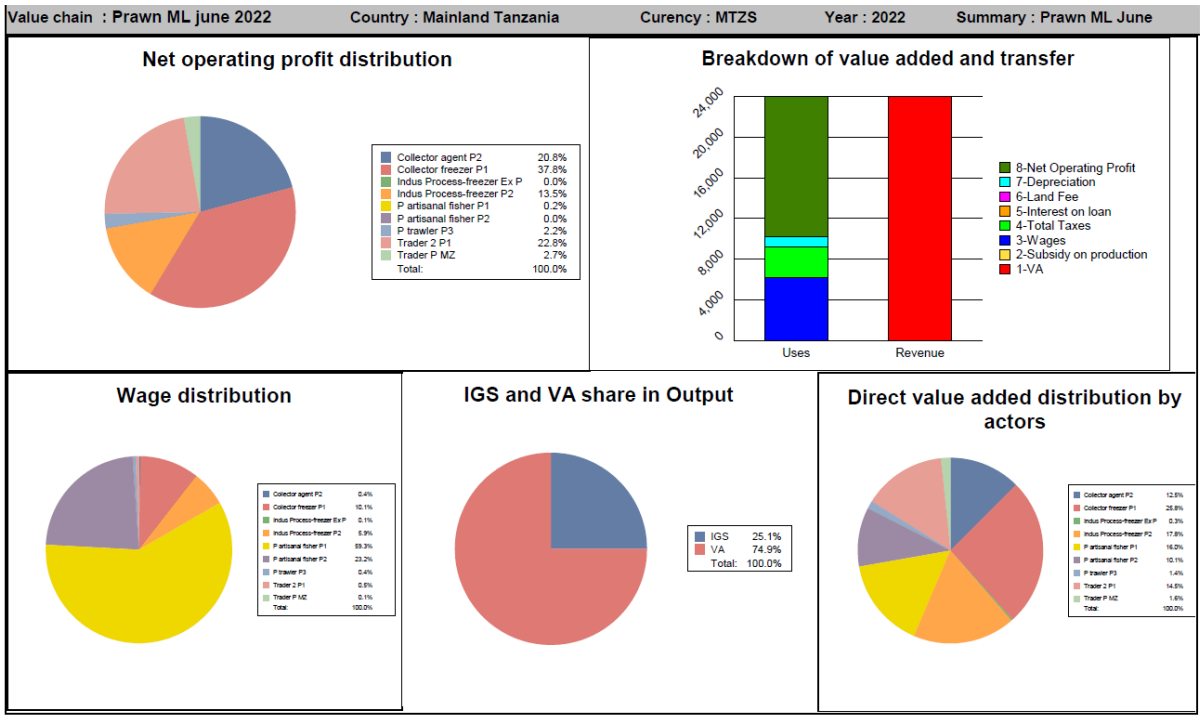
Profitability of the actors

Change : with the 2300 t initial volumes, and flow shares → change with May 2022 primary data

25/06/22

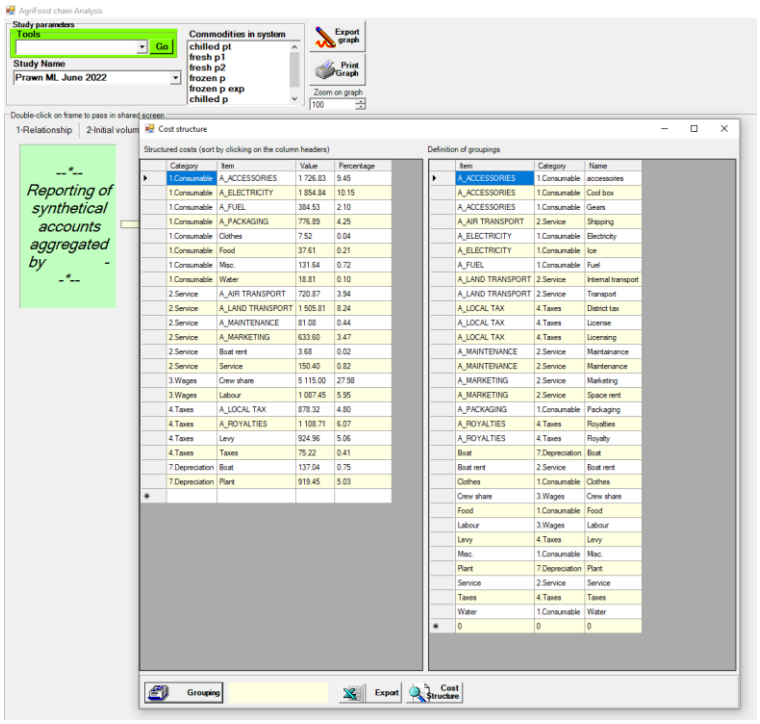
Table: detail accounts/actor

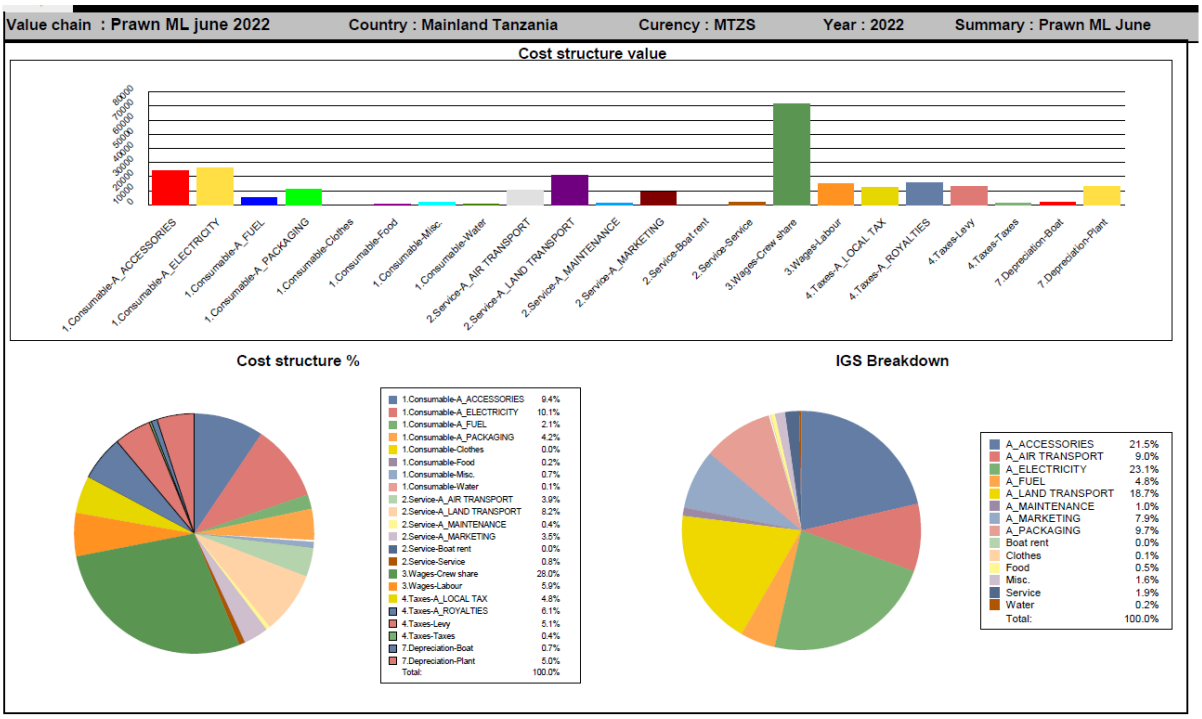
Indicators by Actors and estimations of number of actors																		
Actor	Output	Subsidy	IGS	VA	Wages	Tax	Interest	Land fe	Depreci	Net Operatir	Volume Input /	Annual	Nb of Actors		nb/acto	nb jobs		nb fishe
P artisanal fisher P2	3 384	0	959	2 425	1 438	939	0	0	45	3	752.00	4.00	188		3	564		564
P trawler P3	494	0	149	345	28	11	0	0	0	306	16.00	5.40	3		28	83		
Collector freezer P1	12 175	0	5 988	6 187	625	383	0	0	0	5 179	1 532.00	7.20	213		1	213		
Indus Process-freezer P2	14 172	0	9 913	4 259	368	1 140	0	0	900	1 851	736.00	72.00	10		20	204		
Trader 2 P1	16 657	0	13 185	3 473	28	326	0	0	0	3 119	1 353.00	9.00	150		1	150		
Collector agent P2	6 626	0	3 640	2 986	25	118	0	0	0	2 843	752.00	10.00	75		1	75		
Indus Process-freezer Ex P	358	0	292	66	8	33	0	0	20	6	16.00	72.00	0		20	4		
Trader P MZ	3 853	0	3 476	377	5	8	0	0	0	363	260.00	27.00	10		1	10		
P artisanal fisher P1	3 830	0	0	3 830	3 677	29	0	0	92	33	1 532.00	4.00	383		3	1149		1149
VALUE CHAIN	31 983	0	8 034	23 948	6 202	2 987	0	0	1 056	21 736	----------	1 032						
total	61 550		37 601	23 948	6 202	2 987			1 056	13 702	6 949		1 032		78	2 453		1 713



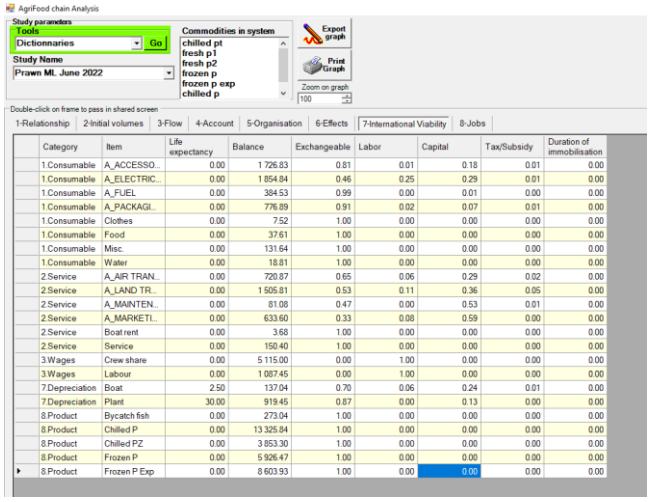
Cost structure

Grouping into various groups as follows. And correspondence to Table 1, Input/output





Calculation of effects

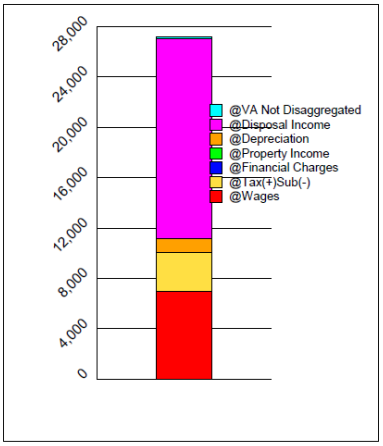


Category	Item	Life expectancy	Balance	Exchangeable	Labor	Capital	Tax/Subsidy	Duration of immobilisation
1.Consumable	A_ACCESSO...	0.00	1 726.83	0.81	0.01	0.18	0.01	0.00
1.Consumable	A_ELECTRIC...	0.00	1 854.84	0.46	0.25	0.29	0.01	0.00
1.Consumable	A_FUEL	0.00	384.53	0.99	0.00	0.01	0.00	0.00
1.Consumable	A_PACKAGI...	0.00	776.89	0.91	0.02	0.07	0.01	0.00
1.Consumable	Clothes	0.00	7.52	1.00	0.00	0.00	0.00	0.00
1.Consumable	Food	0.00	37.61	1.00	0.00	0.00	0.00	0.00
1.Consumable	Misc.	0.00	131.64	1.00	0.00	0.00	0.00	0.00
1.Consumable	Water	0.00	18.81	1.00	0.00	0.00	0.00	0.00
2.Service	A_AIR TRAN...	0.00	720.87	0.65	0.06	0.29	0.02	0.00
2.Service	A_LAND TR...	0.00	1 505.81	0.53	0.11	0.36	0.05	0.00
2.Service	A_MAINTEN...	0.00	81.08	0.47	0.00	0.53	0.01	0.00
2.Service	A_MARKETI...	0.00	633.60	0.33	0.08	0.59	0.00	0.00
2.Service	Boat rent	0.00	3.68	1.00	0.00	0.00	0.00	0.00
2.Service	Service	0.00	150.40	1.00	0.00	0.00	0.00	0.00
3.Wages	Crew share	0.00	5 115.00	0.00	1.00	0.00	0.00	0.00
3.Wages	Labour	0.00	1 087.45	0.00	1.00	0.00	0.00	0.00
7.Depreciation	Boat	2.50	137.04	0.70	0.06	0.24	0.01	0.00
7.Depreciation	Plant	30.00	919.45	0.87	0.00	0.13	0.00	0.00
8.Product	Bycatch fish	0.00	273.04	1.00	0.00	0.00	0.00	0.00
8.Product	Chilled P	0.00	13 325.84	1.00	0.00	0.00	0.00	0.00
8.Product	Chilled PZ	0.00	3 853.30	1.00	0.00	0.00	0.00	0.00
8.Product	Frozen P	0.00	5 926.47	1.00	0.00	0.00	0.00	0.00
8.Product	Frozen P Exp	0.00	8 603.93	1.00	0.00	0.00	0.00	0.00

Direct and indirect effects (MTZS)

	Direct effects	Indirect effects	Total effects
Imports	0	2 418	2 418
IC not disaggregated		2 360	2 360
Value added			
Wages	6 202	752	6 955
Taxes	*2 987*		
Subsidy	*0*		
Tax (+) Sub (-)	2 987	150	3 137
Interest on loan	0	0	0
Land Fee	0	0	0
Depreciation	1 056	0	1 056
Net Operating Profit	13 702	2 183	15 885
VA not disag.		171	171
VA Total	23 948	3 257	27 205

Total Value Added distribution (MTZS)



Macro-économic effects indicators

VC VAT/GDP	0.0%	
VC VAT/Vc Output	85.1%	with Vc Output 31,982.58 MTZS
VC VAT/Agricutural GDP	0.1%	
VC Tot. Import/ N. Imports	0.0%	
VC Export/Total Export	0.0%	
VC Trade Balance	6 186.4	
VC Trade Balance/ N Imports	0.0%	
VC T. Net Transfer/State budget	0.0%	
VC T. Wages/N.Wages	0.1%	
VC Tot. Disposal Income/Nat. Incom	0.0%	

Reference

Agricultural GDP	37 192 537	MTZS
Disposal income	115 340 321	MTZS
GDP	139 641 854	MTZS
National Export	22 394 010	MTZS
National Import	23 713 761	MTZS
State budget	23 502 700	MTZS
Value Chain Export	8 604	MTZS
Wages	7 006 311	MTZS

International viability

VC export: 8604 MTZS

Category	Item	Life time	Balance	Tradable	Labor	Capital	+Txv / -Sub	Revolv	OutM	InpM	LabM	CapM	OutP	InpP	LabP	CapP
Intermediate Totals								0.00	31 983	6 099	6 967	2 227	31 983	6 021	6 967	2 227

TRANSFERS

	Tax/Sub on tradable		Other transfer		Interest on lease	Total
	Output	Input	Tax on Op.	Subs. on Op.		
Prod +Sub/-Tax Output	0					
Prod -Sub/-Tax Input		0				
Tax on Operation			2 987			
Subs on Operation				0		
Financial Charge					0	
Total Transfert Market	0	0	2 987	0	0	2 987

VALUE AT PARITY PRICES

	Tradable		Domestics Factors		Transfers	Profit
	Output	Input	Wage	Capital		
Market price	31 983	6 099	6 967	2 227	2 987	13 702
Parity price	31 983	6 021	6 967	2 227		16 767
Divergence	0	78	0	0	2 987	-3 065

ACCRONYMS

+Txv / -Sub Ad Valorem Taxe or Subisidy on Tradable

Term	Does not apply
OutM	Output value at Market price
InpM	Intermediate Good and Services value at Market Price
LabM	Labor value at Market price
CapM	Capital value at Market Price
OutP	Output value at Parity Price
InpP	Intermediate Good and Services value at Parity Price
LabP	Labor value at Parity Price
CapP	Capital value at Parity Price

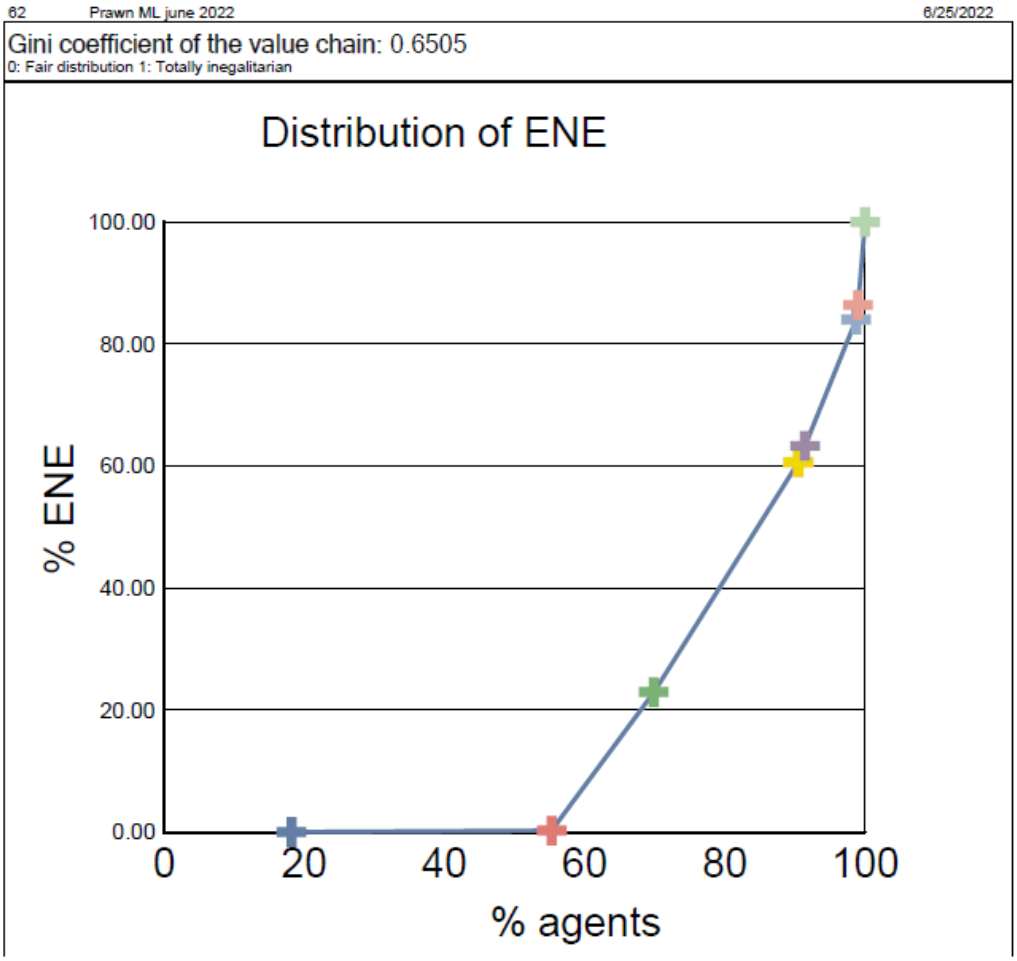
INDICATORS

Dometic Ressource Cost	0.27
Nominal Protection Coefficient	1.00
Effective Protection Coefficient	1.00
Equivalent producer subsidy	-0.10

Inclusiveness

Gini

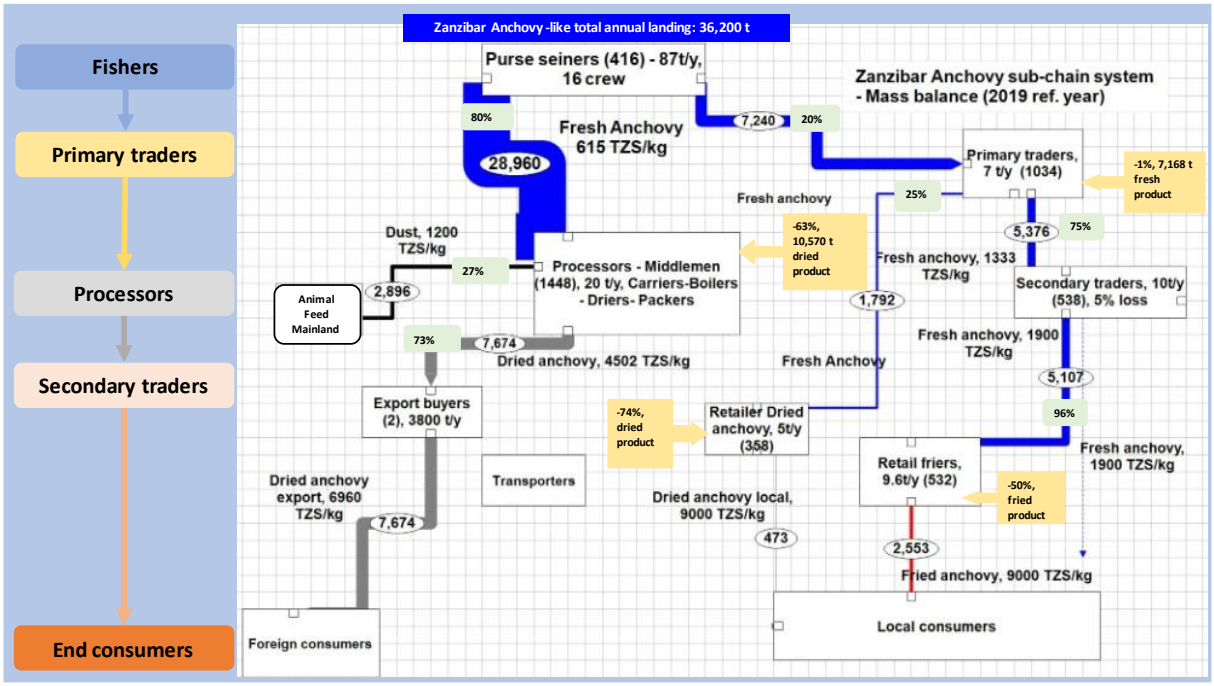
→ showing inequality in the value chain, as shown by these table:


62
Prawn ML june 2022
6/25/2022
Gini coefficient of the value chain: 0.6505
0: Fair distribution 1: Totally inegalitarian
Distribution of ENE
% ENE
100.00
80.00
60.00
40.00
20.00
0.00
0
20
40
60
80
100
% agents

Anchovy sub-chain in ZNZ Final (20/07/22)

Functional analysis

Data from Zafico, 2021, and primary data + additional ref.



Actors

Purse seiners

	purse seiners	cost per trip at sea	nb of trips/month	Nb of months	nb of days/y			cost/kg		WB D1	WB D2	Mafia 2016	Ibengwe
PPSAZ	Zafiro 2021	closed to D1 type of Sofreco's report + arianna+ Zafiro 2021	15-20	12	180	15 d*12							
16	crew	basis											
	catch in buckets			485	trip catch kg	3456		Average of 30 buckets (23 kg fresh anchovies/bucket) per day Arianna Feb 2022)					
	FA kg	if 22-23 kg FA/bucket	22.0455	485	87	tot catch/y		Zafico 2021					21.73913043
	bucket price	20000 low 30000 high, 25000 average			25000								
	Catch in kg												
	Income in TZS				86400000			615	989691	833	889	957	880
			per trip		per year								
		catch trip	0.485	TZS	87	t							
		income/trip	298275	TZS	53.7	MTZS							
					per year	%							
	Net income in TZS				53.7	100							
	Landing fees												
	variable costs (co	covered by the min sum to leave for a trip	138000		24.8	46.3							0.00002484
	fuel	40 l per trip at 2200, 7200 l/y	88000		15.8								0.00001584
	bait	no											
	ice	no											
	accessories	lamps, etc ..	50000		9.0								
	profit to be shared	in this case, before fixed costs			28.8	53.7							
	fixed costs				3.3	6.1							
	repairs	engine			0.3	0.5							
	maintainance	boat			2.4	4.5							
	accessories	generator, lamps..				0.0	supp because redundant						
	licensing	per fisher (he pays): 25000/y -- boat: 115000 -- boat owner: 130000/y			0.6	1.2							
Total inputs (intermediate costs)					28.1	52.4							
Gross added value		Net income -variable costs - fixed costs			25.6	47.6							
	Wages		per crew/m	per crew									
	crew	16 on lead boat, to be shared: 50% crew-- 50%boat owner	0.075128906	0.901546875	14.4	26.9							
	skipper	1	hypo 25% owner part		3.6								
	lamp holder		hypo 15% owner part		2.2								
	boat owner part	3 boats, owner at 100%, 90% anchovy	but minus depr..	AFA=2.4	8.7	16.1		0.2000000					
	Capital depreciation				2.8	5.2							
	depreciation engine				0.6	1.2							
	depreciation boat				0.7	1.3							
	depreciation gears				1.5	2.7							
			per day trip	per month				in USD/month		246.086957			
	profit/fisher/y		5008.6	0.075	0.902	1.7		33		566000 to 1600000 TZS/month according to Sofreco's			
	profit/boat owner/boat/y		owner pays for fixed costs	0.2	2.6	4.8		93		loan of 2 million, paid back in one year :			
	financial fees		end depr							loan of 4 million, paid back in one year :			
	final owner profit		entered in land fees	0.2	2.6	4.8		0		if loan 8 millions,			
			Cost Per unit	Nb	Total cost	Life span (y)		maintainanc depreciation/y					
	boat							per year			depreciation/t/y	investment/t	
	lead	wood, >10m, sold half after 6 years or keptr up to 50 years	10500000	1	10500000	15		2400000	700000	based on 15 years	1443	21649	
	dinghi		47500	3	142500								
	engine	yamaha 40 HP	7000000	1	7000000	11		250000	636363.6364	if good maintainance	1312	14433	
	gears	1 big N°1	750000	1	750000	2.5			375000	3650000	1460000	7526	
		n°2	250000	10	2500000	2.5			1250000				
		n°3	50000	8	400000	2.5			200000				
	energy							depreciation/trip		cost per year			
	generator	one for lead boat 2KW	750000	1	750000	3-4 months		8333	2000000	2250000			
		1 KW, 1 per dignhi	45000	3	135000	3-4 months		1500	360000	405000			
	lamps	in each dignhi	55000	3	165000	3-4 months		1833	440000	495000			

Processors

	assimilated to mid-small scale middlemen in Fujimoto 2018			Fuji 2018	May 2022					total number of days/month		20
TDAZ		nb	purchasing price	/unit	one typical day		tot /y t	tot/y MTZS	need/year	total number of days/year		132
20t/y purchased	anchovy purchasing costs FA	615	TZS/kg FA	500	152	kg	20.0	12.3		total nb per 3 months		60
5.3	t sales DA Congo	4502.6	TZS kg DA	3400	40.1	kg	5.3	23.8		total nb per 6 months		120
	sales for dust	1200	TZS kg DA	600	14.8	kg	2.0	2.3				
gross margin								13.9				
		cost per year					boiling and dry	drying			accessories	
	buckets for landing 2 sets, one day at 400-600 kg FA purchased, 21/d	13.18	3500	one year			0.05	0.05			0.39	
	buckets for processing, 2 sets, 100 buckets/d max	100	1000	one year			0.10	0.10	100			
	tarpaulin cover	2	30000	3 to 4 months	one for 100 buckets use		0.06	0.06	30			
	boiler pan	2	70000	6 months	24 buckets/pan, 20 min (ZZB)		0.14		0.07			
	salt	64	12500		bag 25 kg for 10-20 buckets,15		0.80		0.40			
	firewook	19	45000		per truck, one for 50 buckets		0.87		0.43			
	export bag	34	1200		27 to 30 buckets/bag		0.04	0.04				
										Storage 3 millions invest 10 years		
operational costs							2.06	0.25				
									80% boil and dry			
	carrier wage	870	700		700/bucket		0.61	0.61		labour cost/kg		
	counter on board	870	600		600/bucket ?		0.52	0.52		1367.513898		
	drier's wage	4620	700		700/bucket		3.23	3.23				
	boiler's wage	4620	600		600/bucket		2.77		1.386	2310		
	packer's wage	34	3000		3000/bag?		0.10	0.10				
total wages							7.24	4.47				
	taxes						0.1	0.1				
	storage facility	5	3000000	10 years?	investment of 3 millions		0.01	0.01	average storage of ? 5 day	cost per day	2273	
	licensing cost	30000	hypo				0.03	0.03				
											production costs TZS/kg	
total costs							9	5			1776.872505	
net income							4	9		in MTZS/y		
							0.37	0.76		in MTZS/m		
							162.31	328.26		in USD/m		

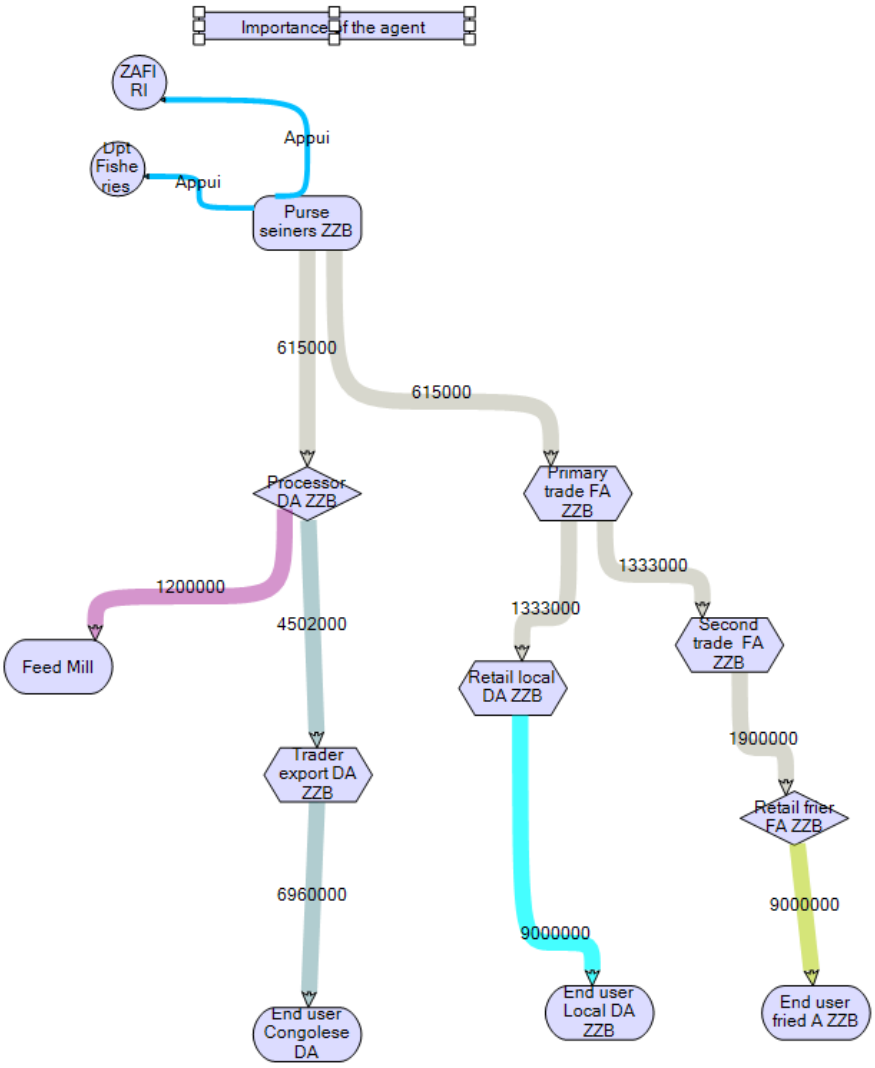
Export traders

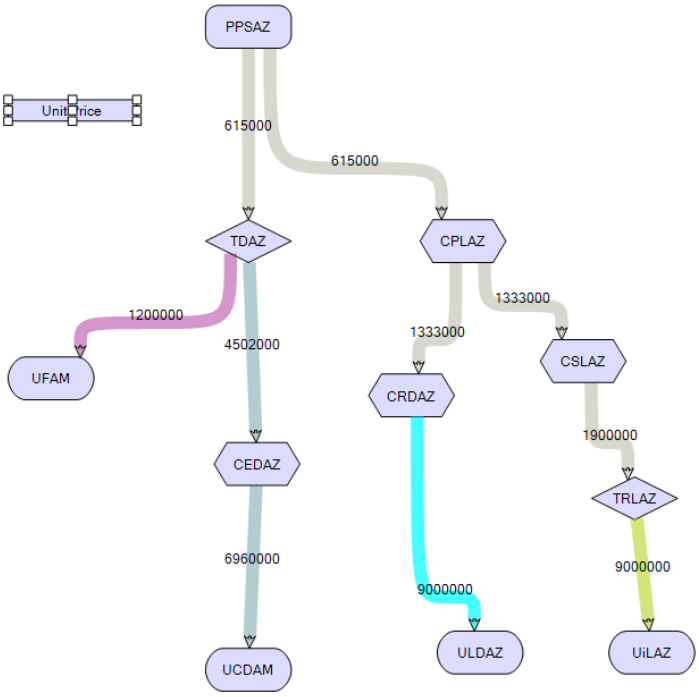
in ZZB							
CEDAZ							
May 2022	calculations up to Dar and congo	big bag at 190 kg	20-to 25000 bags/y	20000		28.57142857	MK share
				per year			
	average vol/m			3800	t/y		
	purchasing price	in TZS/kg	4502.6	17110	in MTZS		
	selling price		6960.5	26450			
	income						
		cost TZS /big bag					
	in ZZB	packer	4500	90			
		loading -un load	9000	180			
		land transport to port	5000	100			
		coordination	2000	40			
		custom fees	3000	60			
		purchase	855500	17110			
		porter to boat	2500	50			
		sea transport	12000	240			
		ZZB district taxes	3000	60			
		total cost	893500	17870			
		tot cost- purchase	38000	760			
	in ML						
		unloading in Dar	2242	calc on bag basis	45		
		loading to truck	2000		40		
		truck transport	20000		400		
		last border service	23000	10 USD/bag	460		
		total ML cost up to Congo	47242		945		
		Total IGS costs	940742		18815	m	
		1% royalty to ZZB (TRA?)	8555		171	per month	per FTE
		labour (15)			45	3.75	0.25 3
		total costs			19031		
		Net profit			7419	28	% turnover

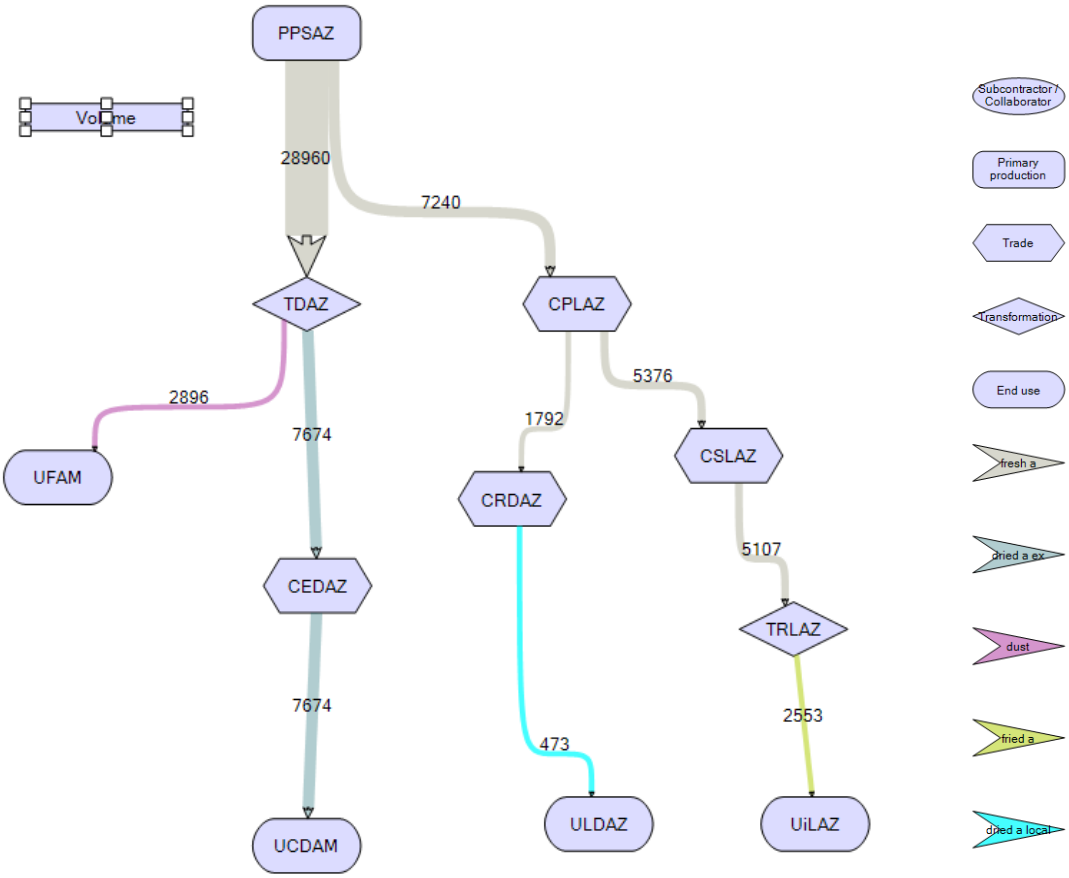
Economic analysis

Update 17/06/22

Vol flow pricing







Profitability

Table: Actor detail accounts

Indicators by Actors and estimations of number of actors

Actor	Output	Subsidy	IGS	VA	Wages	Tax	Interest on loan	Land fee	Depreciation	Net Operating Profit	Volume Input / Output	Annual Capacity per actor	Nb of Actors
Purse seiners ZZB	22 263	0	11 438	10 825	8 412	268	0	957	1 151	36	36 200.00	87.00	416
Processor DA ZZB	38 025	0	20 793	17 232	10 573	188	0	0	434	6 036	28 960.00	20.00	1 448
Trader export DA ZZB	53 414	0	37 145	16 269	818	588	0	0	0	14 863	7 674.00	3 800.00	2
Retail local DA ZZB	4 258	0	4 198	59	0	0	0	0	0	59	1 792.00	5.00	358
Primary trade FA ZZB	9 554	0	9 526	29	0	0	0	0	0	29	7 240.00	7.00	1 034
Second trade FA ZZB	9 703	0	7 649	2 054	202	2	0	0	0	1 851	5 376.00	10.00	538
Retail frier FA ZZB	22 981	0	10 852	12 129	0	5	0	0	0	12 124	5 107.00	9.60	532
VALUE CHAI N	84 128	0	25 532	58 596	20 005	1 051	0	957	1 585	60 530	----------		4 328

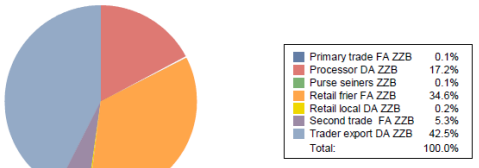
Indicators by operations

Operation	Total Output	Subsidy	IGS	VA	Wage	Taxe	Interest on loan	Land fee	Depreciation	Net operating profit
PPSAZ	22 263	0	11 438	10 825	8 412	268	0	957	1 151	36
CPLAZ	9 554	0	9 526	29	0	0	0	0	0	29
TDAZ	38 025	0	20 793	17 232	10 573	188	0	0	434	6 036
CSLAZ	9 703	0	7 649	2 054	202	2	0	0	0	1 851
CEDAZ	53 414	0	37 145	16 269	818	588	0	0	0	14 863
TRLAZ	22 981	0	10 852	12 129	0	5	0	0	0	12 124
CRDAZ	4 258	0	4 198	59	0	0	0	0	0	59
Value chain	**84 128**	**0**	**25 532**	**58 596**	**20 005**	**1 051**	**0**	**957**	**1 585**	**-44 872**

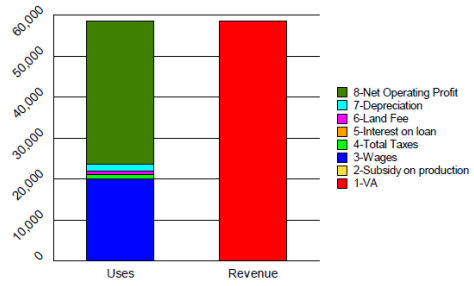
In conso accounts

Value chain : Anchovy ZZB June 2022 | **Country : Zanzibar** | **Curency : MTZS** | **Year : 2022** | **Summary : ZZB anchovy June 2022**

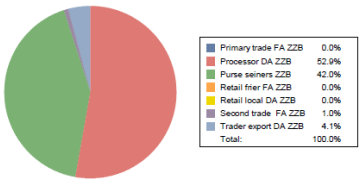
Net operating profit distribution



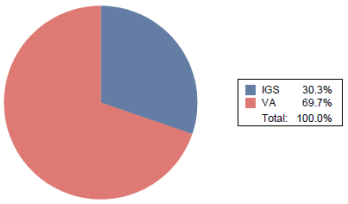
Breakdown of value added and transfer



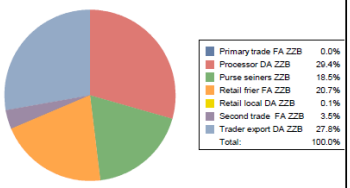
Wage distribution



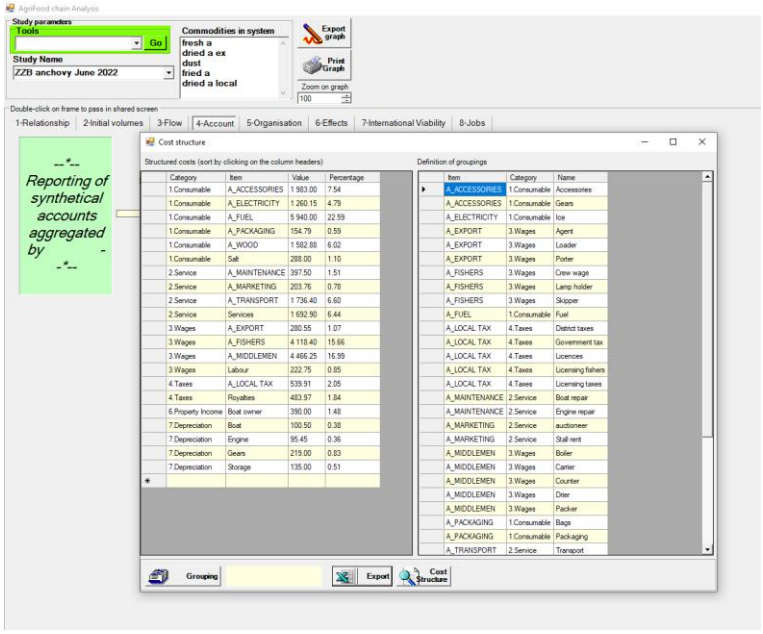
IGS and VA share in Output

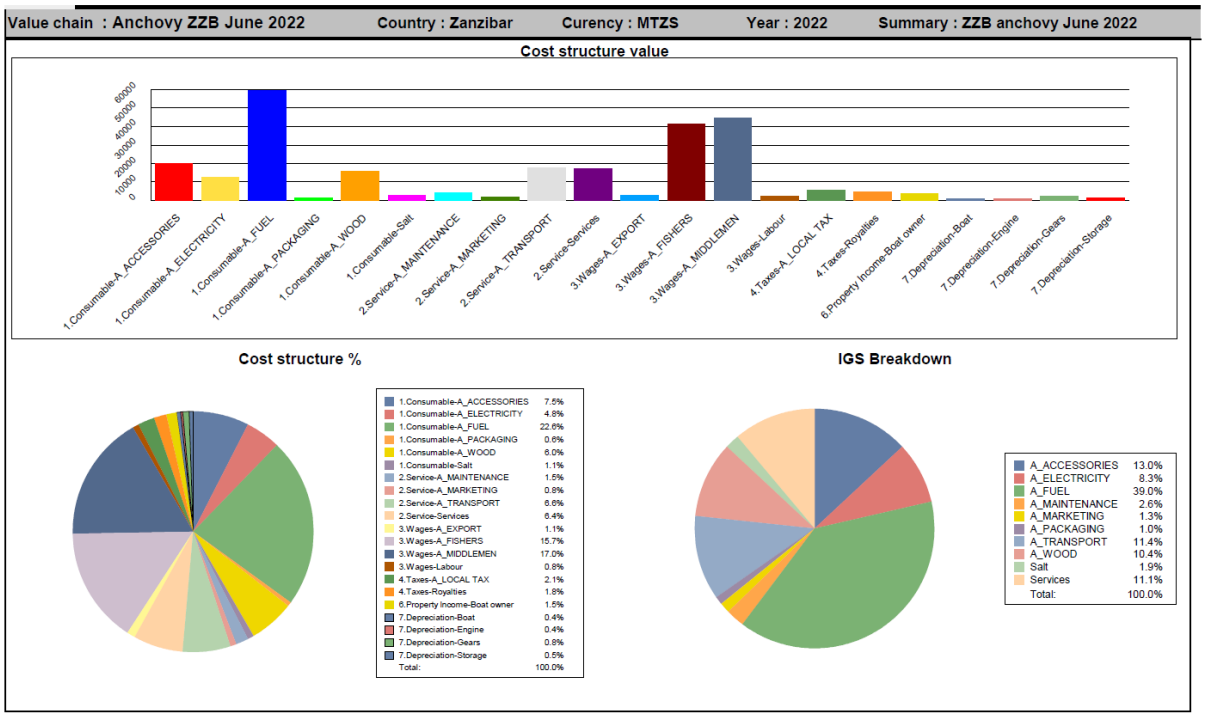


Direct value added distribution by actors



Cost structures





Calculation of effects

Coefficients for disaggregation of IGS

Category	Item	IGS0	IMP0	IMP1	VA1	Wag1	Tax1	Fin1	Pro1	Dep1	Net1	IMP2	VA2	Wag2	Tax2	Fin2	Pro2	Dep2	Net2
1.Consumable	A_ACCESSORIES	4 310	0.00	0.46	0.20	0.06	0.02	0.00	0.00	0.00	0.92	0.24	0.07	0.04	0.02	0.00	0.00	0.00	0.36
1.Consumable	A_ELECTRICITY	1 382	0.00	0.00	0.54	0.45	0.02	0.00	0.00	0.00	0.53	0.01	0.26	0.01	0.02	0.00	0.00	0.00	0.36
1.Consumable	A_FUEL	6 591	0.00	0.95	0.01	0.07	0.07	0.00	0.00	0.00	0.86	0.01	0.49	0.01	0.03	0.00	0.00	0.00	0.68
1.Consumable	A_PACKAGING	99	0.00	0.55	0.10	0.18	0.17	0.00	0.00	0.00	0.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.Consumable	A_WOOD	2 439	0.00	0.37	0.31	0.19	0.05	0.00	0.00	0.00	0.76	0.00	0.25	0.00	0.00	0.00	0.00	0.00	0.29
1.Consumable	Cooking oil	830	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.Consumable	Salt	2 019	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.Service	A_MAINTENANCE	1 103	0.00	0.22	0.53	0.01	0.01	0.00	0.00	0.00	0.98	0.06	0.01	0.01	0.00	0.00	0.00	0.00	0.09
2.Service	A_MARKETING	456	0.00	0.68	0.12	0.01	0.00	0.00	0.00	0.00	0.87	0.01	0.06	0.01	0.00	0.00	0.00	0.00	0.14
2.Service	A_TRANSPORT	4 719	0.00	0.13	0.52	0.21	0.10	0.00	0.00	0.00	0.69	0.29	0.00	0.02	0.02	0.00	0.00	0.00	0.07
2.Service	Border agent	929	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.Service	Load-unload dar	172	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.Service	Sea transport	485	0.00	0.35	0.44	0.06	0.04	0.00	0.00	0.00	0.90	0.13	0.02	0.01	0.01	0.00	0.00	0.00	0.00

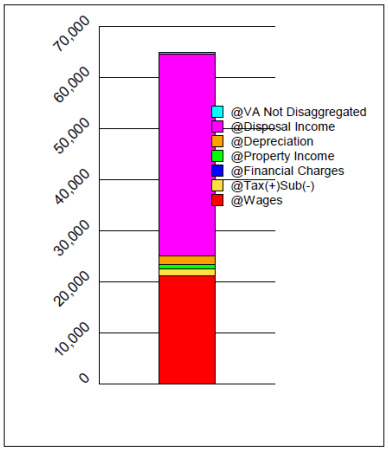
VC export

Trader export DA ZZB	53 414

Direct and indirect effects (MTZS)

	Direct effects	Indirect effects	Total effects
Imports	0	11 407	11 407
IC not disaggregated		7 776	7 776
Value added			
Wages	20 005	1 079	21 084
Taxes	*1 051*		
Subsidy	*0*		
Tax (+) Sub (-)	1 051	345	1 396
Interest on loan	0	0	0
Land Fee	957	0	957
Depreciation	1 585	0	1 585
Net Operating Profit	34 998	4 574	39 572
VA not disag.		351	351
VA Total	58 596	6 349	64 945

Total Value Added distribution (MTZS)



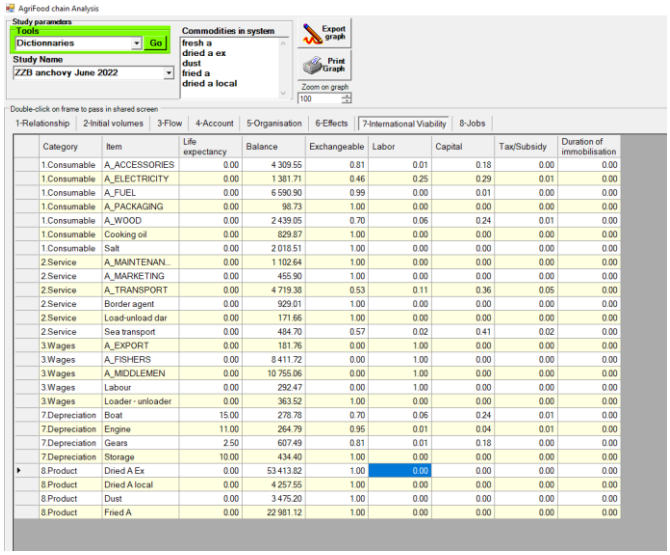
Macro-économic effects indicators

VC VAT/GDP	1.6%	
VC VAT/Vc Output	77.2%	**with Vc Output 84,127.69 MTZS**
VC VAT/Agricutural GDP	7.4%	
VC Tot. Import/ N. Imports	1.5%	
VC Export/Total Export	110.0%	
VC Trade Balance	42 007.4	
VC Trade Balance/ N Imports	5.6%	
VC T. Net Transfer/State budget	0.1%	
VC T. Wages/N.Wages	8.4%	
VC Tot. Disposal Income/Nat. Incom	5.0%	

Reference

Agricultural GDP	875 200	MTZS
Disposal income	787 163	MTZS
GDP	4 147 000	MTZS
National Export	48 573	MTZS
National Import	755 311	MTZS
State budget	1 024 598	MTZS
Value Chain Export	53 414	MTZS
Wages	251 571	MTZS

International viability



	Category	Item	Life expectancy	Balance	Exchangeable	Labor	Capital	Tax/Subsidy	Duration of immobilisation
	1.Consumable	A_ACCESSORIES	0.00	4 309.55	0.81	0.01	0.18	0.00	0.00
	1.Consumable	A_ELECTRICITY	0.00	1 381.71	0.46	0.25	0.29	0.01	0.00
	1.Consumable	A_FUEL	0.00	6 590.90	0.99	0.00	0.01	0.00	0.00
	1.Consumable	A_PACKAGING	0.00	98.73	1.00	0.00	0.00	0.00	0.00
	1.Consumable	A_WOOD	0.00	2 439.05	0.70	0.06	0.24	0.01	0.00
	1.Consumable	Cooking oil	0.00	829.87	1.00	0.00	0.00	0.00	0.00
	1.Consumable	Salt	0.00	2 018.51	1.00	0.00	0.00	0.00	0.00
	2.Service	A_MAINTENAN...	0.00	1 102.64	1.00	0.00	0.00	0.00	0.00
	2.Service	A_MARKETING	0.00	455.90	1.00	0.00	0.00	0.00	0.00
	2.Service	A_TRANSPORT	0.00	4 719.38	0.53	0.11	0.36	0.05	0.00
	2.Service	Border agent	0.00	929.01	1.00	0.00	0.00	0.00	0.00
	2.Service	Load-unload dar	0.00	171.66	1.00	0.00	0.00	0.00	0.00
	2.Service	Sea transport	0.00	484.70	0.57	0.02	0.41	0.02	0.00
	3.Wages	A_EXPORT	0.00	181.76	0.00	1.00	0.00	0.00	0.00
	3.Wages	A_FISHERS	0.00	8 411.72	0.00	1.00	0.00	0.00	0.00
	3.Wages	A_MIDDLEMEN	0.00	10 755.06	0.00	1.00	0.00	0.00	0.00
	3.Wages	Labour	0.00	292.47	0.00	1.00	0.00	0.00	0.00
	3.Wages	Loader - unloader	0.00	363.52	1.00	0.00	0.00	0.00	0.00
	7.Depreciation	Boat	15.00	278.78	0.70	0.06	0.24	0.01	0.00
	7.Depreciation	Engine	11.00	264.79	0.95	0.01	0.04	0.01	0.00
	7.Depreciation	Gears	2.50	607.49	0.81	0.01	0.18	0.00	0.00
	7.Depreciation	Storage	10.00	434.40	1.00	0.00	0.00	0.00	0.00
▸	8.Product	Dried A Ex	0.00	53 413.82	1.00	0.00	0.00	0.00	0.00
	8.Product	Dried A local	0.00	4 257.55	1.00	0.00	0.00	0.00	0.00
	8.Product	Dust	0.00	3 475.20	1.00	0.00	0.00	0.00	0.00
	8.Product	Fried A	0.00	22 981.12	1.00	0.00	0.00	0.00	0.00

Category	Item	Life time	Balance	Tradable	Labor	Capital	+Txv / -Sub	Revolv	OutM	InpM	LabM	CapM	OutP	InpP	LabP	CapP
Intermediate Totals								0.00	84 128	22 116	20 730	4 869	84 128	21 964	20 730	4 869

TRANSFERS

	Tax/Sub on tradable		Other transfer		Interest on lease	Total
	Output	Input	Tax on Op.	Subs. on Op.		
Prod +Sub/-Tax Output	0					
Prod -Sub/-Tax Input		0				
Tax on Operation			1 051			
Subs on Operation				0		
Financial Charge					0	
Total Transfert Market	0	0	1 051	0	0	1 051

VALUE AT PARITY PRICES

	Tradable		Domestics Factors		Transfers	Profit
	Output	Input	Wage	Capital		
Market price	84 128	22 116	20 730	4 869	1 051	35 361
Parity price	84 128	21 964	20 730	4 869		36 565
Divergence	0	152	0	0	1 051	-1 203

ACCRONYMS

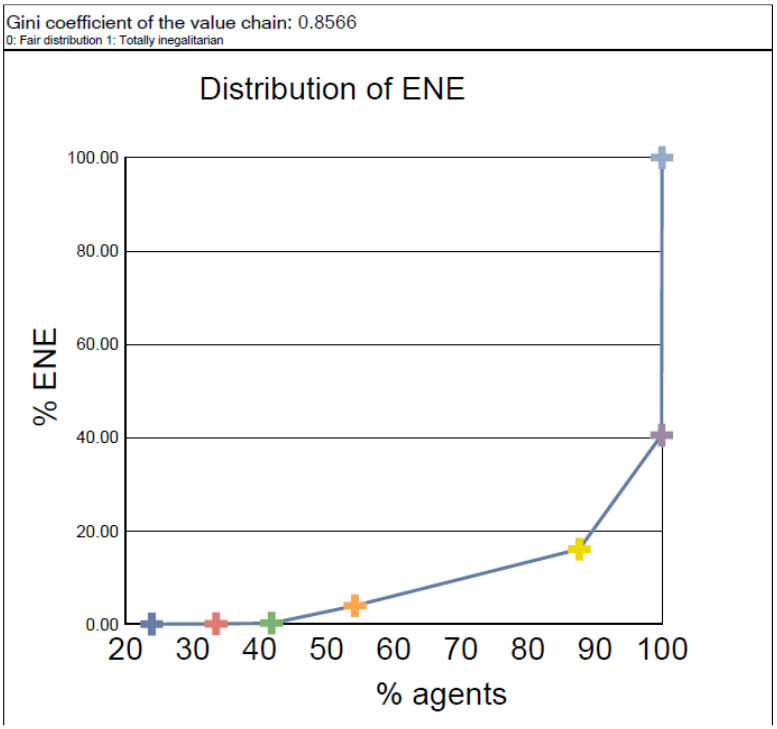
+Txv / -Sub Ad Valorem Taxe or Subisidy on Tradable

Term	Does not apply
OutM	Output value at Market price
InpM	Intermediate Good and Services value at Market Price
LabM	Labor value at Market price
CapM	Capital value at Market Price
OutP	Output value at Parity Price
InpP	Intermediate Good and Services value at Parity Price
LabP	Labor value at Parity Price
CapP	Capital value at Parity Price

INDICATORS

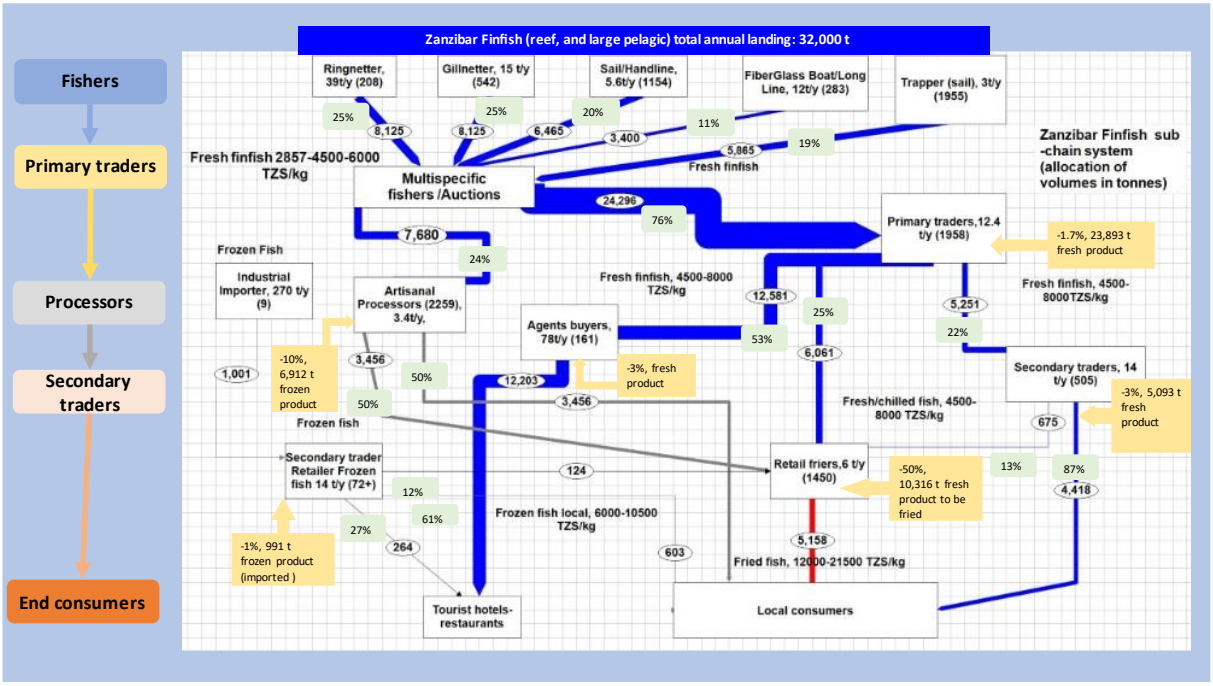
Dometic Ressource Cost	0.33
Nominal Protection Coefficient	1.00
Effective Protection Coefficient	1.00
Equivalent producer subsidy	-0.01

Inclusiveness



Finfish sub-chains in ZNZ Final (20/07/22)

Functional analysis



Cf Mwambao, Blue ventures 2019 *Department of Fisheries Development. (2019). Reef Fisheries Management Plan. Ministry of Agriculture, Natural Resources, Livestock and Fisheries, Zanzibar. 91 pp.*

+ Primary data

Similarities with ML

- Seasonality can vary from one area to another. In Mainland, the period of July to September is problematic but it is more favourable in Pemba and in the northern areas of Unguja. On the other hand, the period from October to May is favourable in Mainland, South-Pemba, South- Unguja but difficult for all fishing sites located on the northern sides of these islands
- fisheries technologies and systems
- categories of actors

Differences with ML

- seasonal pattern
- market channels: importance of tourist sector
- export regulations
- imports regulations (authorized)
-fishing modality for the reef fish (the use of the traps seems to be quite spread)

Market pricing: higher values

Small pelagic, anchovy: about the same range than in MLT.

But otherwise, most reef and large pelagic fish marketed from the fishers to end-users at higher price: minimal price around 4500 TZS/kg (fishers), and can go up to 9000.

The actors: not specific to a species, but to a marketing channel. But at the fishers level, opportunistic, they sell. Adjustments (according to primary data) were made on all the fishers according to primary data.

Clearly: the marketing channel to tourism is much more developed, direct supply from auctions , landing sites, or through successive traders. Most dominating type is through agents, specialized.
Fishers using traps were introduced in our calculations, as they represent a high number in Zanzibar. Two categories could appear, the one using motorized boats (sometimes fiberglass) with a high number of traps checked every trip at sea (for instance 40 for one case reported in Pemba), and on the other hand, fishers using sails and canoe, with a limited number of traps per trip, for instance 8. We used this latter case, as representative of the major most important category in numbers.
As the operating costs are quite limited in this case, the profitability appears quite good for the fisher, and if there is a direct sale to tourist resorts, this seems quite a sustainable activity (primary data, May 2022).

Markets - initial volumes

As in MLT, 3 categories of finfish are identified, low, mid and high value, with " fishers prices, but the adopted range is higher. The low category of finfish that was identified in ML is actually considered through the anchovy sub-chain in Zanzibar.

The 3 categories of finfish in Zanzibar are:

- Finfish FF1: price at 2857 TZS/kg, a mixture of medium pelagic and reef fish, targeted by various main categories of fishers: gillnetters, ringnetters, sail handlines, and trappers. This fish is mainly sold for local consumption, fresh, chilled, frozen or fried, cut or whole.

- Finfish FF2: 4500 TZS/kg, targeted by the same fishers and motorized fiberglass boats, using tarps, or longlines. This fish, mixture of reef fish and large pelagic is marketed to local market but also to hotels, through a specific pathway, with independent traders linked to hotels.

- Finfish FF3: 6000 TZS/kg, targeted with the same fishers as FF2, but the proportion of large pelagic, large fish is higher, as the share marketed to hotels, with specialized trading agents.

Imports fish (mainly frozen mackerel) are also to be considered, and will be included the FF1 sub-chain. Similarly, volumes of chilled or frozen fish may be transiting between ML to ZZB, and this point is not clear yet.

As we have no information of the type of fish caught by a type of fishing, the allocation of volumes for each type of fishery was done as assumptions, based upon reported practices. The initial volumes of the 3 categories referred in the national Zanzibar statistics were increased by 30% to cover illegal, unreported catches.

The findings are compared to published statistics of the Zanzibar Survey report covering the reference year 2019 (MBEFZ, 2020)

ZANZIBAR		FINFISH				12400									tot vol in t 8125	3400	8125	5865	6465	31980
	%		11.3	50.0	31.8										%tota vol 25	%tota vol 11	%tota vol 25	%tota vol 18	% total vol 20	
28/04/2022	31790.2	9776	19730.1	2284.1																
	30%	2256	4553.1	527.1																100
ZZB National Statistics		7520	15177	1757	2857	4500	6000			boat	boat crew	deduced nb units	fishers	nb engines	tot ringnet RN	FB (LL)	nb gillnetter(GN)	nb trappers TRAP	nb handline/sail HL	
		LP	R	MP	Fresh F1	Fresh F2	Fresh F3	total		annual vol										
Sail canoe	PSFZ1	0	1225	240	1465			1465		5.6	2	262	523						262	
Ringnet	PRF1Z	0	1225	900	2125			2125		39	30	54	1635	54	54					
Gillnet	PGF1Z	0	1225	900	2125			2125		15	6	142	850	142			142			
Trapper	PTF1Z	0	1225	240	1465			1465		3	2	488	977					488		
Gillnet	PGF2Z	1000	2000	0		3000		3000		15	6	200	1200	200			200			
Motor/fiber	PMLP2	1000	700	0		1700		1700		12	2	142	283	142		142				
Sail canoe	PSFZ2	1000	1500	0		2500		2500		5.6	2	446	893						446	
Ringnet	PRRZ2	1000	2000	0		3000		3000		39	30	77	2308	77	77					
Trapper	PTF2Z	1000	1200	0		2200		2200		3	2	733	1467					733		
Ringnet	PRRM3	1000	2000	0			3000	3000		39	30	77	2308	77	77					
Sail canoe	PSFZ3	1000	1500	0			2500	2500		5.6	2	446	893						446	
Motor/fiber	PMLP3	1000	700	0			1700	1700		12	3	142	425	142		142				
Gillnett	PGF3Z	1000	2000	0			3000	3000		15	6	200	1200	200			200			
Trapper	PTF3Z	1000	1200	0			2200	2200		3	2	733	1467					733		
	total	10000	19700	2280	7180	12400	12400	31980				4142.8	16427	1033	208	283	542	1955	1154	
		31980			31980													12 traps/unit		
												frame survey	36652 fisher on vessel	2582 engines	209-318	311 in survey	1318	19550	17841	

Actors

Fishers

Fiber Glass, Long line.

Fishers	01/01/2022	2	nb of trips/n	Nb of month	per year						FF3	6000			
LP	Pemba		20	12	240	trips/yea					FF2	4500			
fiber vesskl		basis									FF1	2857			
arianna	catch in										FF	1429			
	kg			50	kg average/day trip			0	t/m	12.000	t/y				
	price TZS/kg	5000 low	6000 high					FF3				FF2	FF1		
	Catch in kg					per day trip		MTZS per y				MTZS per y	MTZS per y		
								6000				4500	2857		
					Income in MTZS			72.00				54.00	34.28		
	Landing fees	no fees covered by the fishers													
	Auction fees	no fees covered by the fishers			1%	0		0.72				0.54	0.34		
	landing fees	no fees covered by the fishers			0%	0		0.00				0.00	0.00		
	Net income in TZS					0		71.28				53.46	33.94		
	variable costs (co	covered by the min sum to leave for a trip													
	fuel			2200	TZS/l	37500.0		10.56				10.56	10.56		
	20	l/trip	4800	l/y											
	bait		2500/kg			12500.0		3.00				3.00	3.00		
	ice	no													
	accessories	misc		Et ci-desous invets.		6000.0		1.00				1.00	1.00		
	profit to be shared	in this case, before fixed costs						56.72				38.90	19.38		
	Wages														
	crew	2	75%				21.27	42.54			14.588	29.18	14.54	7.27	
	boat owner part		25%			9.8	12.58	14.18	placed in land fees		6.74	9.73	4.85	less depr and fixed	
						AFA				AFA	6.70				
	fixed costs														
	repairs	engine						1.00				1.00	1.00		
	maintainance	boat						0.28				0.28	0.28		
	licensing/y	boat	50000					0.05				0.05	0.05		
	fisher		30000					0.06				0.06	0.06		
	Capital depreciation														
	depreciation engine							0.90				0.90	0.90		
	depreciation boat							0.70				0.70	0.70		
	depreciation gears					replaced in consumables		0.00				0.00	0.00		
						in USD/month	per m			in USD	MTZS per m			MTZS/m	
	profit/fisher					770.7	1.8	21.27		528.5	1.2	14.59	7.27	0.61	263.33
	profit/boat owner					455.8	1.0	12.58		244.0	0.6	6.74	3.25	0.27	117.58
	captain					0.0	0.0	0.00		0.0	0.0	0.00	0.00	0.00	0.00
							in MTZ	depreciation/y	Depreciation/t						
			Cost Per unit	Nb	Total cost	Life span (y)		per year							
	boat	fiberglass 11	14	1	14	20	1.16666667	0.7	0.05833333						
	antifouling						0								
	engine	15 HP Yamah	4.5	1	4.5	5	0.375	0.9							
	gears	lines, hooks,	1	1	1	1		1							

Gillnetters

Fishers			**nb of trips/m**	**Nb of month**	**per year**										
pemba	**May 2022**	**6**	**15**	**12**		**180**	**trip/year**					**PGFFZ**			
Arianna		basis						540	MTZ max						
gillnet	catch in							0.238083333	MTZ/trip average						
WB +May 22	**kg**	low 2-3 pieces high 100 pieces, average				**8-10 kg/piece**						**average catch**		**50**	pieces/trip
	price	30000/piece		**2857**	TZS/kg							**average catch**		**83.3**	kg/trip
	Catch in kg	22.5	low	900								**average per month**		**1.25**	**t/m**
	Income in TZS	75000		3000000				**per year**	**in MTZS**			**average per y**		**15**	t/y
						0.9	t	**15.0**				**avergae income /y/boat**		**42.9**	MTZ
	income			**good trip**		**3000000**		**42.86**							
	Landing fees	no fees covered by the fishers													
	Auction fees	covered by the fishers		1%		90000		0.43							
	landing fees	covered by the fishers		0.5 % broker, 0,5 % cleane		30000		0.00							
				1%											
	variable costs (co	**covered by the min sum to leave for a trip**				**300000.0**		9	54000						
	fuel		**15l/trip**	2200 TZS/l	**2700**	0.0	0	**5.9**	2700 liters		**et oil**				
	bait	no					0								
	engine maintenance	**20000/m**					0	0.24							
	boat maintenance	200000/m						2.40							
	accessories						0								
	water/food						0								
	crew	**50000/membre/trip before**				**300000.0**	0			0	54000000				
		after trip													
	profit to be shared	**in this case, before fixed costs**				**2580000.0**		33.85							
	gears		**15%**			**387000.0**		**5.08**							
	Wages										3.66669875				
	crew after trip		65%			1677000.0		22.00	3.66669875						
	boat owner part		20%			516000.0		6.77		**3.62**	**minus depr all**				
										3.39	**AFA**	**2857**			
	licensing	25000/each		150000				0.1500		**8.35**		**4500**			
	local tax			2000				0.0020		**12.77**		**6000**			
	boat licensing			23000				0.0230							
	Capital depreciation														
	depreciation engine							0.900							
	depreciation boat							1							
	depreciation gears							1							
						in MTZ	in MTZ								
						per year	per m	**in USD/month**							
	profit/fisher/					**3.7**	**0.30555823**	**133**							
	profit/boat owner/boat/y					3.6	**0.3016075**	**131**							
	depr		boat and engine												
	final owner profit					**1.8**	**0.1516075**	**66**							
								depreciation							
			Cost Per unit	Nb	Total cost	Life span (y)		per year							
	boat	**dhow**	**9**	**1**	**9**	**10**		**0.9**							
	engine	**40 HP**	**9**	**1**	**9**	**10**		**0.90**							
	gears		0.6	9	5.4	4		**1.35**							
	GPS		0.35	0	0	2		0							

Sail Handliners

Zanzibar		2022	**13**	**12**		**156**	**trip/year**					PSRZ1	2857	
boat owner		basis										PSRZ2	4500	
handline	catch in	pieces	500	good trip	200-250 kg			**0.10255897**	MTZ/trip average			PSRZ3	6000	
	kg		**35.9**	average trip		**0.3 to 1 kg/piece**					average catch			pieces/trip
	price	**2857**			TZS/kg						**average catch**		**35.9**	**kg/trip**
	Catch in kg										**average per month**		**0.46666667**	**t/m**
	Income in TZS					per trip		**pey year**	**in MTZ**		**average per y**		**5.6**	**t/y**
						0.03589744	t	5.6			**avergae income /y/boat**		**15.9992**	**MTZ**
	income			**average trip**	**35.9**	**102558.974**		**16.00**	89.59552					
	Landing fees	no fees covered by the fishers												
	Auction fees	covered by the fishers		1%		1025.58974		0.16	0.15					
	landing fees	covered by the fishers		0		0		0.00	0.05					
	net income					101533.4		15.8						
	variable cost covered by the min sum to leave for a trip													
	bait		0	5000	2 kg/trip	10000.0		1.56						
	accessories		5000			5000		0.78	et invest gears/y					
	water/food													
profit to be shared	**in this case, before fixed costs**					66533.4		13.50						
	boat maintenance		**20%**			20000.0		2.70	in Maintenance cost					
	Wages													
	crew after trip		80%			66533.4		10.80	**5.3996832**		**AFA at 5.29**	**2857**	**PSFZ1**	
	crew membe	**2**									**AFA at 8.94**	**4500**	**PSFZ2**	
											AFA at 12.26	**6000**	**PSFZ3**	
	licensing	30000/each		60000				0.0600						
	boat licensing	25000						0.0250						
							profit/y	10.60						
						profit/m	profit/y/fish	5.30						
						0.4								
				in TZS		in MTZ	in MTZ							
				per trip		**per year**	**per m**	**USD/month**						
	profit/fisher			**33266.6923**		**5.3**	**0.4414861**	**192**						
								depreciation						
			Cost Per unit	Nb	Total cost	Life span (y)		per year						
	boat	7 m canoe	**0.4**	1	0.4	**10**		0.04						
	sail 6m2		0.002	6	0.012	1		0.01						
	ropes and hooks		0.0667	1	0.0667	1		0.07						
	torche		0.003	1	0.003	1		0.00						

Ringnetters

Ring net		30	cost per trip	nb of trips/m	Nb of month	per year									
01/01/2022	ZNZ			24	7.5	buckets/d	trips/y		cost/t	catch/day		catch t/mont	catch t/year		
			basis t/d	1		0 to 70	288								
	catch in buck	18	kg/bucket	18			2205	buckets/year		135	kg/day	3.24	38.88	t	39.69
	kg							2205							
	bucket price		low high, average			51426	per bucket		2857	selling TZS/kg			per year		
	Catch in kg												38.88	t	
	Income in MTZS					385695	per trip		0.39	per trip	135	kg	111.08016	MTZS	
											0.135				
	Landing fees														
	Auction fees			to report	1% income sales				0.00				1.11		
	landing fees			to report	0				0.00		1.35		0.00		
	Net income in TZS					385695	100		0.38				109.97		
	variable cost		covered by the min sum to leave for a trip						0.09						
	fuel				liters	2200 TZS/l			0.09				25.34	313.541667	per trip
				Arianna 40 l/trip		11520	l/y								
	seafam			25000	per month								0.30		
Gross profit									0.29				84.33		
	fixed costs														
	licensing		per fisher (h	25000/y		625000			0.0022	divided par day trip			0.75		
	licensing/boat			115000/y					0.0004				0.115		
Profit to be shared in this case									0.29				84.33		
Gross added value			Net income -variable costs - fixed costs						0.29				84.33		
	part for maintenance to boat owner												28.1		
	Wages														per crew
	crew	30.00		67%		0.22	total crew		0.22	0.007	0.22		56.2	crew	1.874
	skipper	1		15% of boat owner part		0.01			0.01		0.07		28.1	skipper+boat owner	
	boat owner	group				0.06			0.06		boat owner part (+ skippe		4.2	skipper	
													23.9	boat woner	
													22.6	minus depr	
													22.31	minus maintenancve	
							45000	15 buckets	3000.00	per bucket	transport		6.615		
Capital depreciation												net profit	15.69		
	total depr		per year		1.28										
						per year	per month		in USD/month						
	profit/fisher/y					1.87	0.156158		68						
	profit/boat owner					15.69	1.307821		569				MTZS	land fee	
	financial fees											2857	14.85	AFA profit owner	
	skipper					4.22	0.4		153			4500	32.75	AFA	
												6000	49.4	AFA	
				Cost Per unit	Nb	Total cost M	Life span (y)	cost/d	depreciation/y	dep/day					
									per year						
	boat		10 m	15	1	15	20	0.05208333	0.75						
						0									
	engine			8	1	8	15	0.02777778	0.53	0.00177778					
	gears			0.5	15	7.5	10	0.02604167	0.75	0.0025					

Trappers

May 10	**Trapper (with canoe type)**		**2**		days at sea							
	catch per day		**10**	kg	288	312	**300**	days/y				
	catch per year in t		**3**	t/y								
	selling		**2857**	TZS/kg								
	Year income		8.571	MTZS								
	Year costs											
	Boat maintenance, access		2.25		should cover sum of depr, bait, traps..			1.98				
				0.27	**entered in AFA**							
	auction landing fees		0.09	1%	?							
	bait		1.50			one bag/day		1.5				
	license boat		0.03									
	license fisher		0.05									
	boat depr		0.13									
	Traps		0.33		1 change/3 month							
	profit to be shared		6.24	MTZS/y/fish	MTZS per mc	in USD		Profit MTZS/m/fisher				
	crew		3.12	1.5588225	0.13	56.48		**2857**	**0.13**	**PTFZ1**		
	owner							**4500**	**0.23**	**PTFZ2**		
								6000	**0.32**	**PTFZ3**		
		Purchasing	nb	total	Life span	depr/y		if 7000	0.39			
	Boat	**1.3**	**1**	**1.3**	**10**	0.13		**if 8500**	**0.48**			
								if 10000	0.57			
	trap	**7000**	**21**	**0.147**				if 12000	0.7			
		12000	**15**	**0.18**				**if 14000**	**0.82**			
		total		**0.327**								
				0.109	**3 sets/y**							

Traders

Hotel agents

May, 2022	Hotel agent					
	trip vol	250	kg			
	nb trips/week	**6**		312	trip=batch/y	
	vol/y in t	**78**	75.66			
	average selling p	10000	TZS/kg			
					per y in MTZS	
	total income				**780**	
		per 250 kg				
	costs					
	purchasing	2125000			663	
	carry to office	25000			7.8	
	ice	2000			0.6	
	transport to hot	65000			20.3	
	labour				14.4	
	depr				0.6	
	net profit				73.9	
	investment		Nb	total	lifespan	depr/y
	box	0.6	6	3.6	6	0.6

Others traders

Adjusted on primary data from N. Jiddawi, April 2022

Fish importers

	Fish importe	ZNZ													
	TIF1Z	TIF2Z			- Importation table								MTZS		
					species	% vol	CIF price in USD/kg	Selling price in TZS/kg	End user price	purchasing at	nb containers	total vol in t	total purchase	total income	
nb container	5	5	2		Yellow tail 500g to 1.2 kg	50	1.89 (less if bigger or smaller)	6000	7000	4347	5	135	586.845	810	FF2
t	135	135	54		Pacific mackerel-Korea	30	1.2	4400		2760	3	81	223.56	356.4	FF1
income	594	810	405		Horse mackerel	20	1.2	4400		2760	2	54	149.04	237.6	FF1
purchase	372.6	586.845	304.29		King fish 300-400 g	some (54 t)	2.45	7500		5635	2	54	304.29	405	
											12	270	959.445	1404	FF3
	FF1	FF2	FF3									324	1263.735	1809	
					Cost per container in MTZS			Costs per year in MTZS							
	56	56	22.4		Landing costs	11.2		112							
	16.2	16.2	6.48		Electricity /month	0.27		32.4							
	0.7	0.7	0.28		Labour ?			1.4	estimate						
	11.88	16.2	8.1		Market levy tax		2% of income	28.08							
	136.62	134.055	63.45		Net profit			270.675				invest plant	100	MTZS	10 years
	40.986	40.2165	19.035		Tanzania Revenue Tax		30% income	81.2025							
	40.986	40.2165	19.035		ZZB income tax		30% income	81.2025				investment			
												5 containesr	2.5		
gross profit	221.4	223.155	100.71		Gross profit			444.555							
					Net net profit			108.27			electricity:	ratio for nb containers		32.4	
500 l	fuel at 2200														

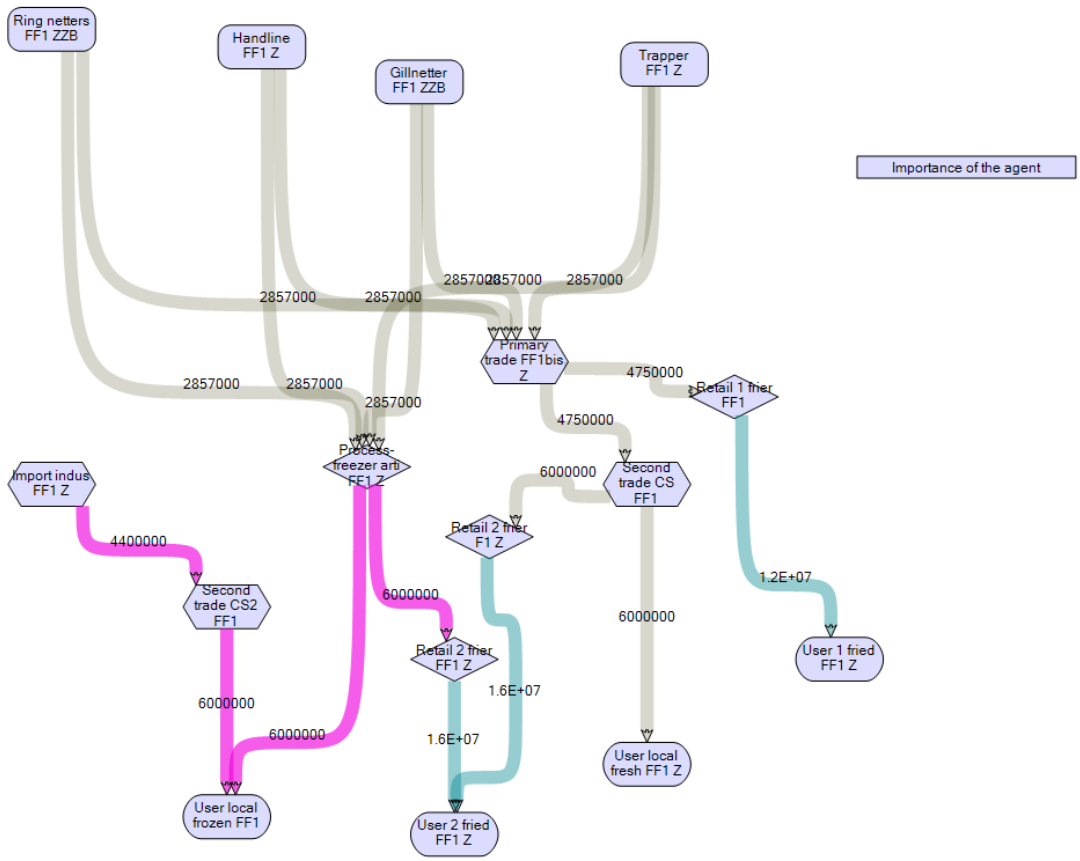
Processors

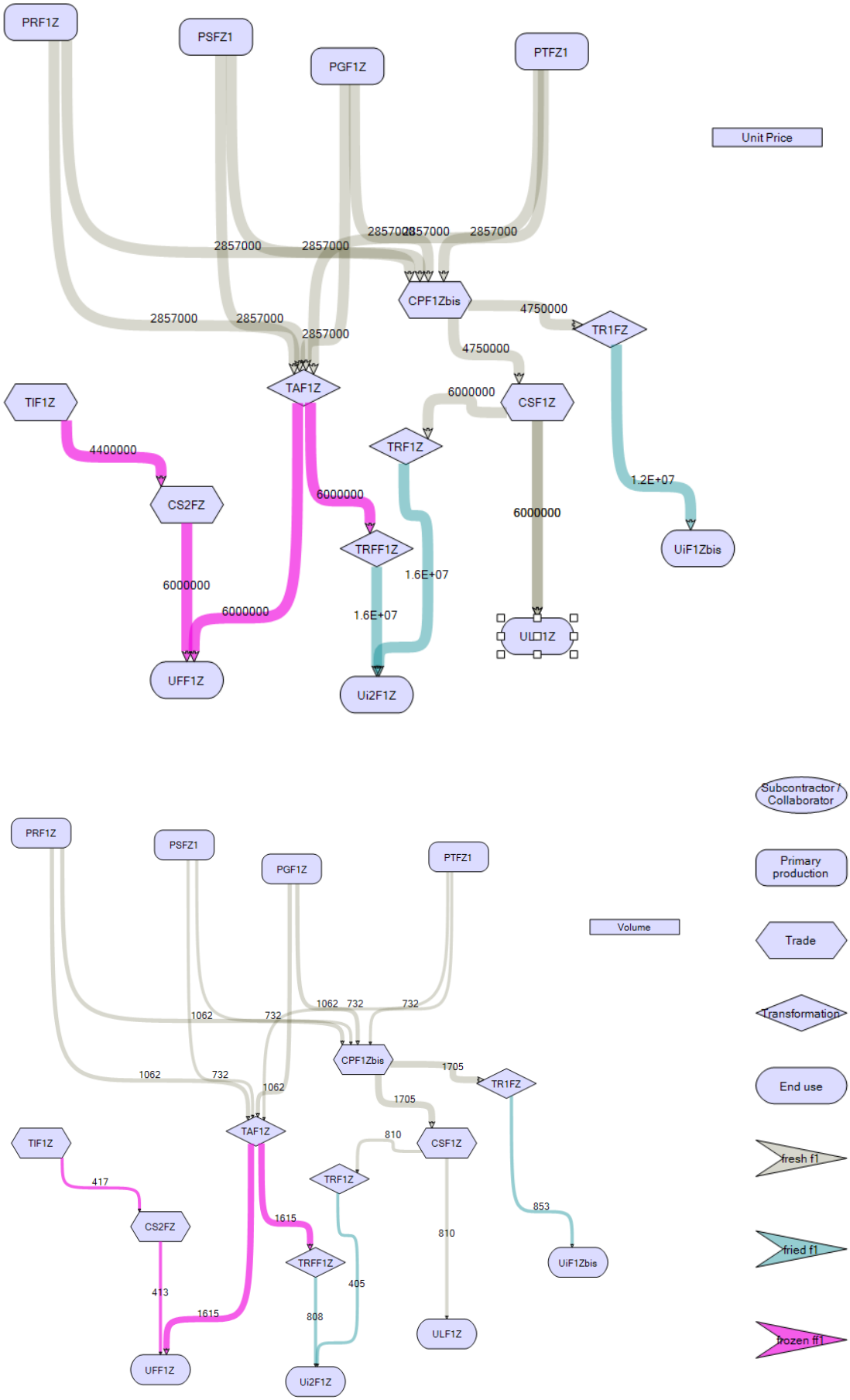
Chillers, freezers, De gutters: Primary data from N. Jiddawi, April 2022

Sub-chain FF1 in ZNZ

(14/06/22)

Actor, price, flows



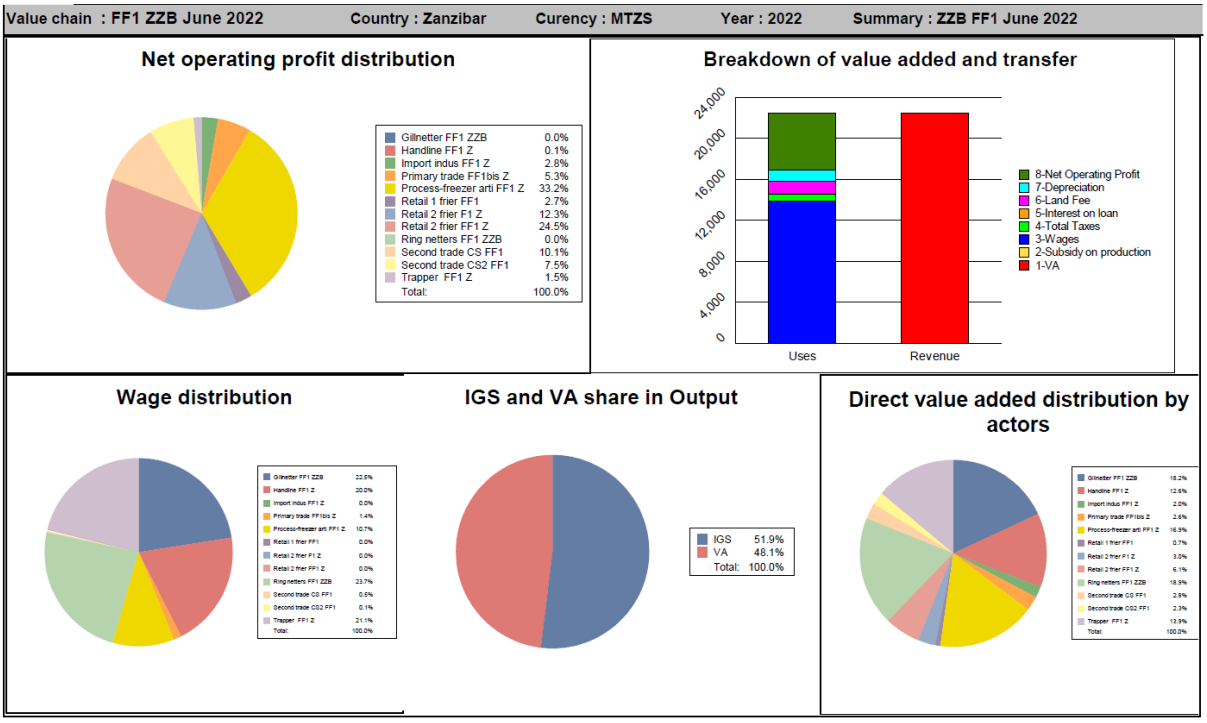

PRF1Z
PSFZ1
PGF1Z
PTFZ1
Unit Price
2857000
2857000
2857000
2857000
2857000
2857000
2857000
CPF1Zbis
4750000
TR1FZ
4750000
TAF1Z
6000000
CSF1Z
TIF1Z
TRF1Z
4400000
1.2E+07
CS2FZ
6000000
6000000
TRFF1Z
UiF1Zbis
1.6E+07
6000000
6000000
1.6E+07
UL□1Z
UFF1Z
Ui2F1Z
Subcontractor / Collaborator
Primary production
Trade
Transformation
End use
fresh f1
fried f1
frozen ff1
Volume
PRF1Z
PSFZ1
PGF1Z
PTFZ1
1062
732
1062
732
732
1062
CPF1Zbis
1705
TR1FZ
1062
732
1062
1705
TAF1Z
810
CSF1Z
TIF1Z
TRF1Z
417
853
CS2FZ
1615
810
TRFF1Z
UiF1Zbis
405
413
1615
808
ULF1Z
UFF1Z
Ui2F1Z

Profitability

Table: Detail accounts

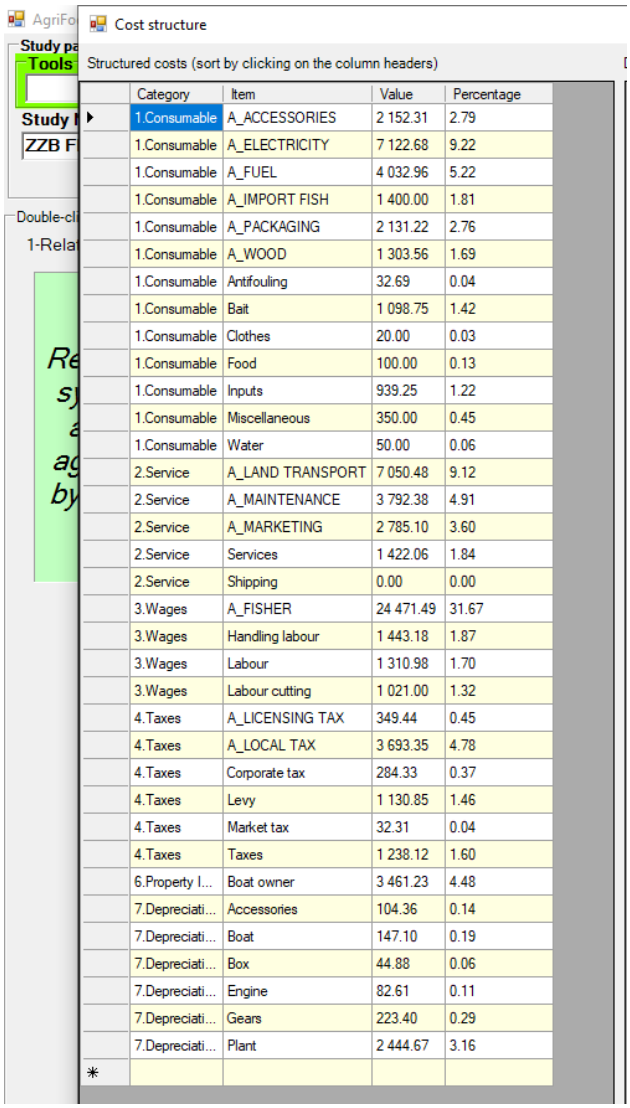
Indicators by Actors and estimations of number of actors													
Actor	Output	Subsidy	IGS	VA	Wages	Tax	Interest	Land fee	Depreci	Net Ope	Volume Input / Ou	Annual	Nb of Ac
Ring ne	6 071	0	1 818	4 253	3 286	47	0	809	111	0	2 125.00	39.00	54
Primary	16 201	0	15 608	592	197	101	0	0	0	294	3 588.00	12.41	289
Second	9 720	0	9 098	622	64	1	0	0	0	558	1 705.00	14.00	122
Retail 2	6 480	0	5 796	684	0	7	0	0	0	677	810.00	6.00	135
Second	2 477	0	1 969	508	16	79	0	0	0	414	417.00	14.00	30
Import ir	1 835	0	1 377	457	2	290	0	0	11	154	417.00	135.00	3
Process	19 386	0	15 599	3 787	1 478	15	0	0	465	1 829	3 588.00	3.40	1 055
Retail 1	10 232	0	10 070	162	0	16	0	0	0	146	1 705.00	6.00	284
Handlin	4 186	0	1 360	2 825	2 768	22	0	0	31	4	1 465.00	5.60	262
Gillnette	6 071	0	1 996	4 075	3 120	27	0	480	446	2	2 125.00	15.00	142
Trapper	4 186	0	1 068	3 118	2 930	42	0	0	63	83	1 465.00	3.00	488
Retail 2	12 924	0	11 559	1 365	0	15	0	0	0	1 350	1 615.00	6.00	269
VALUE	46 666	0	24 217	22 449	13 860	661	0	1 289	1 128	29 729	----------	3 134	

Figures from Consolidated accounts



Cost structure

Grouping: 88% grouped and disaggregated for calc of effects.



Category	Item	Value	Percentage
1.Consumable	A_ACCESSORIES	2 152.31	2.79
1.Consumable	A_ELECTRICITY	7 122.68	9.22
1.Consumable	A_FUEL	4 032.96	5.22
1.Consumable	A_IMPORT FISH	1 400.00	1.81
1.Consumable	A_PACKAGING	2 131.22	2.76
1.Consumable	A_WOOD	1 303.56	1.69
1.Consumable	Antifouling	32.69	0.04
1.Consumable	Bait	1 098.75	1.42
1.Consumable	Clothes	20.00	0.03
1.Consumable	Food	100.00	0.13
1.Consumable	Inputs	939.25	1.22
1.Consumable	Miscellaneous	350.00	0.45
1.Consumable	Water	50.00	0.06
2.Service	A_LAND TRANSPORT	7 050.48	9.12
2.Service	A_MAINTENANCE	3 792.38	4.91
2.Service	A_MARKETING	2 785.10	3.60
2.Service	Services	1 422.06	1.84
2.Service	Shipping	0.00	0.00
3.Wages	A_FISHER	24 471.49	31.67
3.Wages	Handling labour	1 443.18	1.87
3.Wages	Labour	1 310.98	1.70
3.Wages	Labour cutting	1 021.00	1.32
4.Taxes	A_LICENSING TAX	349.44	0.45
4.Taxes	A_LOCAL TAX	3 693.35	4.78
4.Taxes	Corporate tax	284.33	0.37
4.Taxes	Levy	1 130.85	1.46
4.Taxes	Market tax	32.31	0.04
4.Taxes	Taxes	1 238.12	1.60
6.Property I...	Boat owner	3 461.23	4.48
7.Depreciati...	Accessories	104.36	0.14
7.Depreciati...	Boat	147.10	0.19
7.Depreciati...	Box	44.88	0.06
7.Depreciati...	Engine	82.61	0.11
7.Depreciati...	Gears	223.40	0.29
7.Depreciati...	Plant	2 444.67	3.16

Calc effects

One potential minor error on AFA: the import fish. IMP0. No change of coeff.

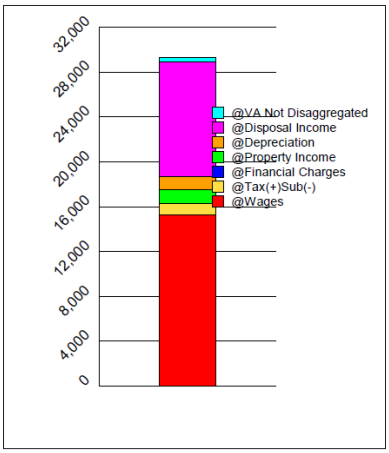
Coefficients for disaggregation of IGS

Category	Item	IGS0	IMP0	IMP1	VA1	Wag1	Tax1	Fin1	Pro1	Dep1	Net1	IMP2	VA2	Wag2	Tax2	Fin2	Pro2	Dep2	Net2
1.Consumable	A_ACCESSORIES	1 076	0.00	0.46	0.20	0.06	0.02	0.00	0.00	0.00	0.92	0.24	0.07	0.04	0.03	0.00	0.00	0.00	0.36
1.Consumable	A_ELECTRICITY	3 561	0.00	0.00	0.54	0.45	0.02	0.00	0.00	0.00	0.53	0.01	0.26	0.01	0.02	0.00	0.00	0.00	0.36
1.Consumable	A_FUEL	2 016	0.00	0.95	0.01	0.07	0.07	0.00	0.00	0.00	0.86	0.01	0.49	0.01	0.03	0.00	0.00	0.00	0.68
1.Consumable	A_IMPORT FISH	700	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.Consumable	A_PACKAGING	1 066	0.00	0.55	0.10	0.18	0.17	0.00	0.00	0.00	0.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.Consumable	A_WOOD	652	0.00	0.37	0.31	0.19	0.05	0.00	0.00	0.00	0.76	0.00	0.25	0.00	0.00	0.00	0.00	0.00	0.29
1.Consumable	Antifouling	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.Consumable	Bait	549	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.Consumable	Clothes	10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.Consumable	Food	50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.Consumable	Inputs	470	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.Consumable	Miscellaneous	175	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.Consumable	Water	25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.Service	A_LAND TRANSPORT	3 525	0.00	0.13	0.52	0.21	0.10	0.00	0.00	0.00	0.69	0.29	0.00	0.02	0.02	0.00	0.00	0.00	0.27
2.Service	A_MAINTENANCE	1 896	0.00	0.22	0.53	0.01	0.01	0.00	0.00	0.00	0.98	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.09
2.Service	A_MARKETING	1 393	0.00	0.00	0.68	0.12	0.01	0.00	0.00	0.00	0.87	0.01	0.06	0.01	0.00	0.00	0.00	0.00	0.14
2.Service	Services	711	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.Service	Shipping	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Direct and indirect effects (MTZS)

	Direct effects	Indirect effects	Total effects
Imports	0	4 581	4 581
IC not disaggregated		6 484	6 484
Value added			
Wages	13 860	1 452	15 312
Taxes	*661*		
Subsidy	*0*		
Tax (+) Sub (-)	661	286	947
Interest on loan	0	0	0
Land Fee	1 289	0	1 289
Depreciation	1 128	0	1 128
Net Operating Profit	5 512	4 740	10 251
VA not disag.		350	350
VA Total	22 449	6 827	29 276

Total Value Added distribution (MTZS)



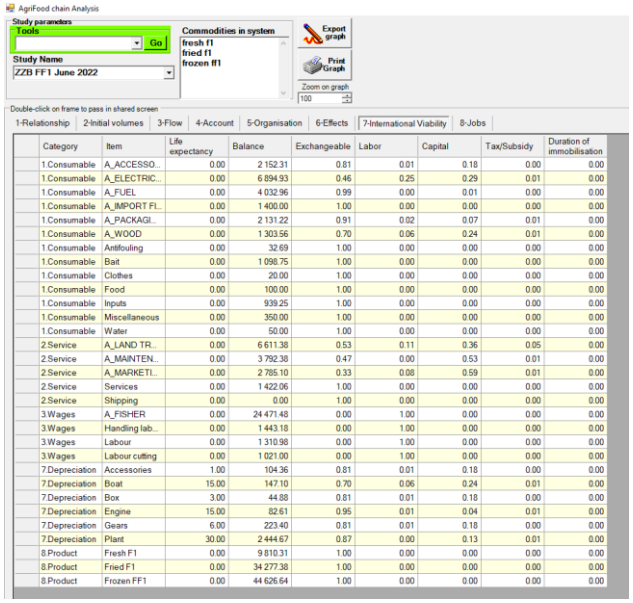
Macro-économic effects indicators

VC VAT/GDP	0.7%	
VC VAT/Vc Output	62.7%	with Vc Output 46,666.31 MTZS
VC VAT/Agricutural GDP	3.3%	
VC Tot. Import/ N. Imports	0.6%	
VC Export/Total Export	0.0%	
VC Trade Balance	-4 580.6	
VC Trade Balance/ N Imports	-0.6%	
VC T. Net Transfer/State budget	0.1%	
VC T. Wages/N.Wages	6.1%	
VC Tot. Disposal Income/Nat. Incom	1.3%	

Reference

Agricultural GDP	875 200	MTZS
Disposal income	787 163	MTZS
GDP	4 147 000	MTZS
National Export	48 573	MTZS
National Import	755 311	MTZS
State budget	1 024 598	MTZS
Value Chain Export	0	MTZS
Wages	251 571	MTZS

International



	Category	Item	Life expectancy	Balance	Exchangeable	Labor	Capital	Tax/Subsidy	Duration of immobilisation
	1.Consumable	A_ACCESSO...	0.00	2 152.31	0.81	0.01	0.18	0.00	0.00
	1.Consumable	A_ELECTRIC...	0.00	6 894.93	0.46	0.25	0.29	0.01	0.00
	1.Consumable	A_FUEL	0.00	4 032.96	0.99	0.00	0.01	0.00	0.00
	1.Consumable	A_IMPORT FI...	0.00	1 400.00	1.00	0.00	0.00	0.00	0.00
	1.Consumable	A_PACKAGI...	0.00	2 131.22	0.91	0.02	0.07	0.01	0.00
	1.Consumable	A_WOOD	0.00	1 303.56	0.70	0.06	0.24	0.01	0.00
	1.Consumable	Antifouling	0.00	32.69	1.00	0.00	0.00	0.00	0.00
	1.Consumable	Bait	0.00	1 098.75	1.00	0.00	0.00	0.00	0.00
	1.Consumable	Clothes	0.00	20.00	1.00	0.00	0.00	0.00	0.00
	1.Consumable	Food	0.00	100.00	1.00	0.00	0.00	0.00	0.00
	1.Consumable	Inputs	0.00	939.25	1.00	0.00	0.00	0.00	0.00
	1.Consumable	Miscellaneous	0.00	350.00	1.00	0.00	0.00	0.00	0.00
	1.Consumable	Water	0.00	50.00	1.00	0.00	0.00	0.00	0.00
	2.Service	A_LAND TR...	0.00	6 611.38	0.53	0.11	0.36	0.05	0.00
	2.Service	A_MAINTEN...	0.00	3 792.38	0.47	0.00	0.53	0.01	0.00
	2.Service	A_MARKETI...	0.00	2 785.10	0.33	0.08	0.59	0.01	0.00
	2.Service	Services	0.00	1 422.06	1.00	0.00	0.00	0.00	0.00
	2.Service	Shipping	0.00	0.00	1.00	0.00	0.00	0.00	0.00
	3.Wages	A_FISHER	0.00	24 471.48	0.00	1.00	0.00	0.00	0.00
	3.Wages	Handling lab...	0.00	1 443.18	0.00	1.00	0.00	0.00	0.00
	3.Wages	Labour	0.00	1 310.98	0.00	1.00	0.00	0.00	0.00
	3.Wages	Labour cutting	0.00	1 021.00	0.00	1.00	0.00	0.00	0.00
	7.Depreciation	Accessories	1.00	104.36	0.81	0.01	0.18	0.00	0.00
	7.Depreciation	Boat	15.00	147.10	0.70	0.06	0.24	0.01	0.00
	7.Depreciation	Box	3.00	44.88	0.81	0.01	0.18	0.00	0.00
	7.Depreciation	Engine	15.00	82.61	0.95	0.01	0.04	0.01	0.00
	7.Depreciation	Gears	6.00	223.40	0.81	0.01	0.18	0.00	0.00
	7.Depreciation	Plant	30.00	2 444.67	0.87	0.00	0.13	0.01	0.00
	8.Product	Fresh F1	0.00	9 810.31	1.00	0.00	0.00	0.00	0.00
	8.Product	Fried F1	0.00	34 277.38	1.00	0.00	0.00	0.00	0.00
	8.Product	Frozen FF1	0.00	44 626.64	1.00	0.00	0.00	0.00	0.00

Category	Item	Life time	Balance	Tradable	Labor	Capital	+Txv / -Sub	Revolv	OutM	InpM	LabM	CapM	OutP	InpP	LabP	CapP
Intermediate Totals								0.00	88 714	25 988	31 076	10 635	88 714	25 712	31 076	10 635

TRANSFERS

	Tax/Sub on tradable		Other transfer		Interest on lease	Total
	Output	Input	Tax on Op.	Subs. on Op.		
Prod +Sub/-Tax Output	0					
Prod -Sub/-Tax Input		0				
Tax on Operation			661			
Subs on Operation				0		
Financial Charge					0	
Total Transfert Market	0	0	661	0	0	661

VALUE AT PARITY PRICES

	Tradable		Domestics Factors		Transfers	Profit
	Output	Input	Wage	Capital		
Market price	88 714	25 988	31 076	10 635	661	20 354
Parity price	88 714	25 712	31 076	10 635		21 291
Divergence	0	276	0	0	661	-937

ACCRONYMS

+Txv / -Sub Ad Valorem Taxe or Subisidy on Tradable

Term Does not apply
OutM Output value at Market price
InpM Intermediate Good and Services value at Market Price
LabM Labor value at Market price
CapM Capital value at Market Price
OutP Output value at Parity Price
InpP Intermediate Good and Services value at Parity Price
LabP Labor value at Parity Price
CapP Capital value at Parity Price

INDICATORS

Dometic Ressource Cost	0.49
Nominal Protection Coefficient	1.00
Effective Protection Coefficient	1.00
Equivalent producer subsidy	-0.01

Inclusiveness

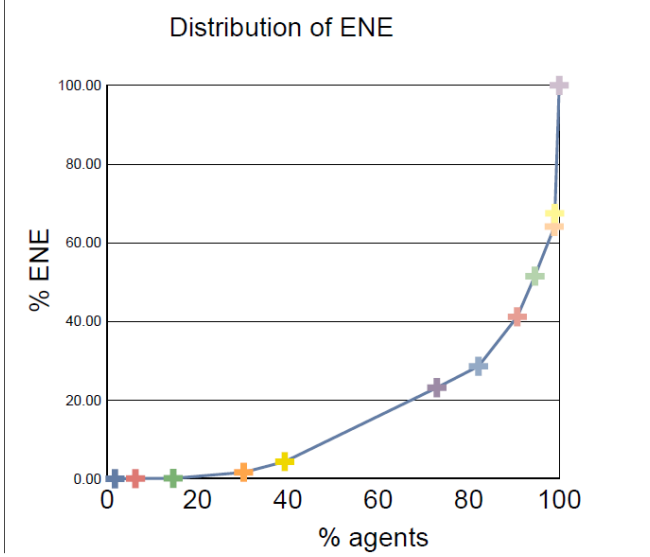
AgriFood chain Analysis
Summary table of the effects

53 FF1 ZZB June 2022 6/14/2022

Table of HHI coefficients

Name	HHI Offer	HHI Agent	HHI Demand	Position
Gillnetter FF1 ZZB		7	11	Dépendant pour vers fresh f1
Handline FF1 Z		4	11	Dépendant pour vers fresh f1
Import indus FF1 Z		324	336	Dépendant pour vers frozen ff1
Primary trade FF1bis Z	25	3	29	Dépendant pour fresh f1 vers fresh f1
Process-freezer arti FF1 Z	25	1	16	Dépendant pour fresh f1 vers frozen ff1
Retail 1 frier FF1	35	4	70	Dépendant pour fresh f1 vers fried f1
Retail 2 frier F1 Z	82	7	49	Dépendant pour fresh f1 vers fried f1
Retail 2 frier FF1 Z	9	4	49	Dépendant pour frozen ff1 vers fried f1
Ring netters FF1 ZZB		18	11	Dominant pour vers fresh f1
Second trade CS FF1	35	8	19	Dépendant pour fresh f1 vers fresh f1
Second trade CS2 FF1	3 237	34	30	Intermédiaire pour frozen ff1 vers frozen ff1
Trapper FF1 Z		2	11	Dépendant pour vers fresh f1
User 1 fried FF1 Z	35	7		Dépendant pour fried f1 vers
User 2 fried FF1 Z	25	5		Dépendant pour fried f1 vers
User local fresh FF1 Z	82	7		Dépendant pour fresh f1 vers
User local frozen FF1	11	3		Dépendant pour frozen ff1 vers

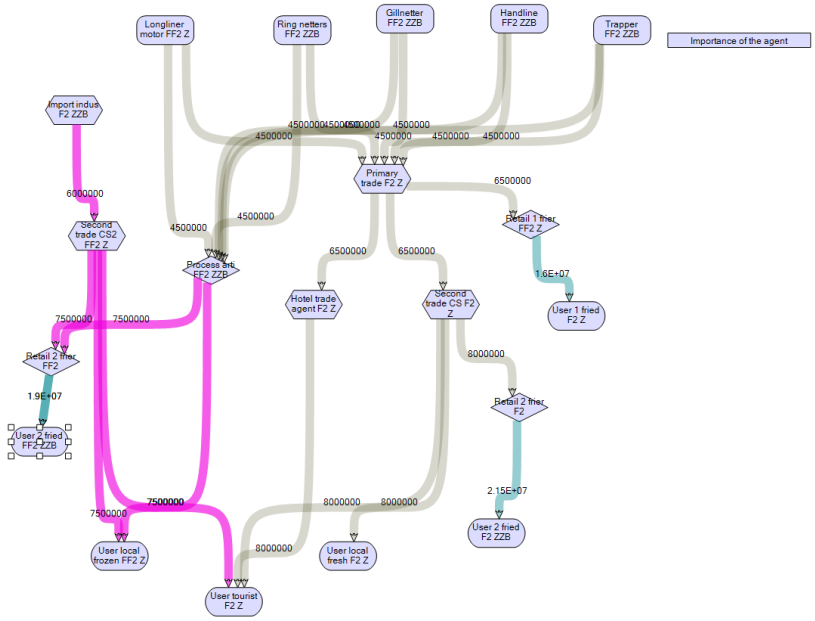
Gini coefficient of the value chain: 0.6882
0: Fair distribution 1: Totally inegalitarian

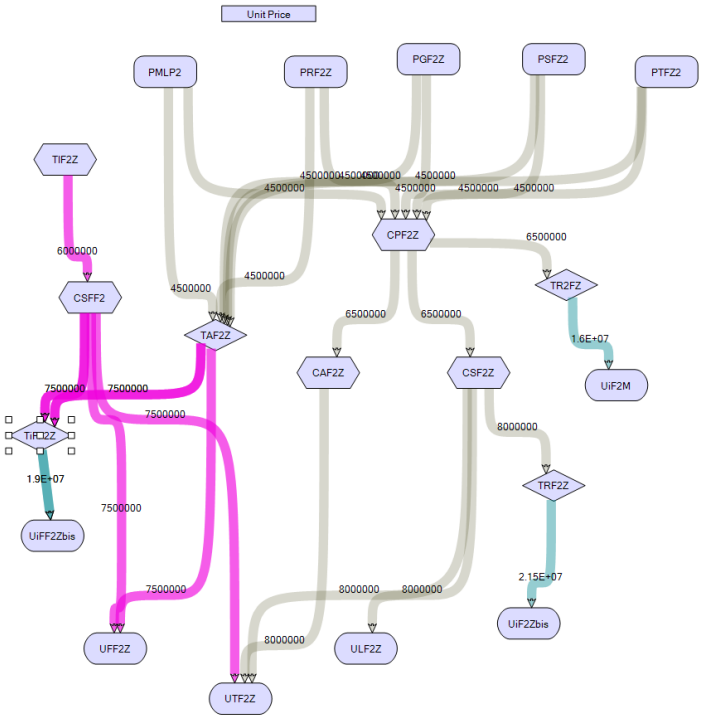


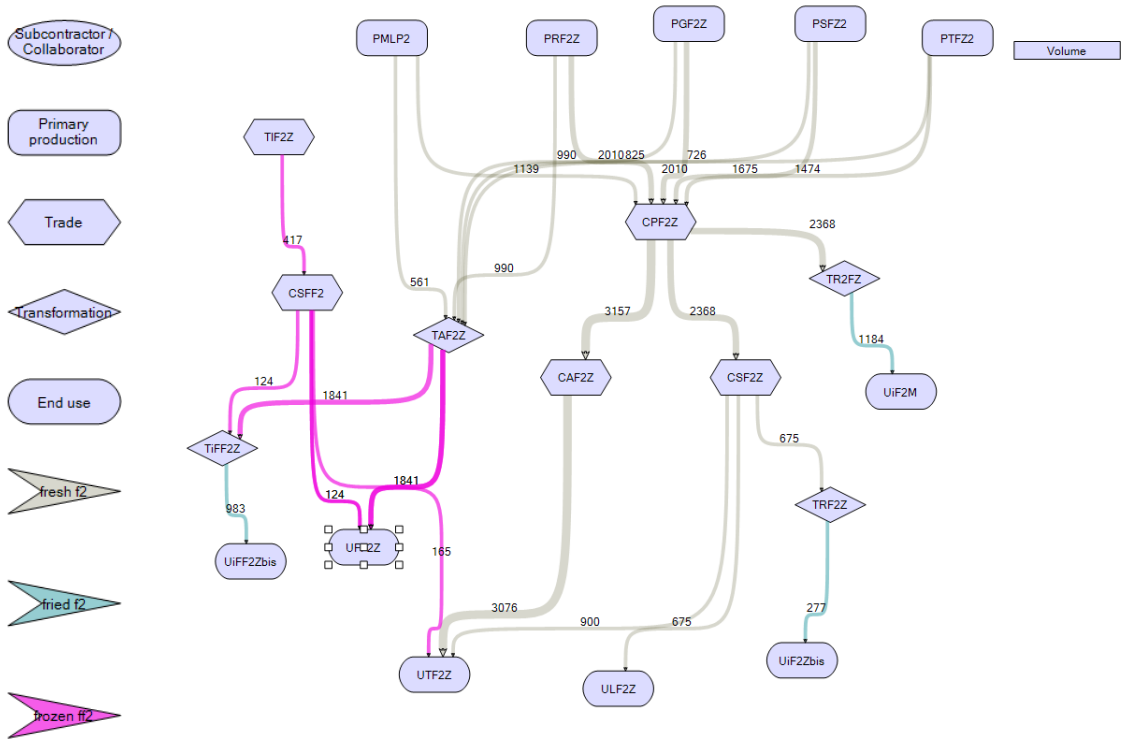
Sub-chain FF2 in ZNZ

16/06/22

Actor, price, flows



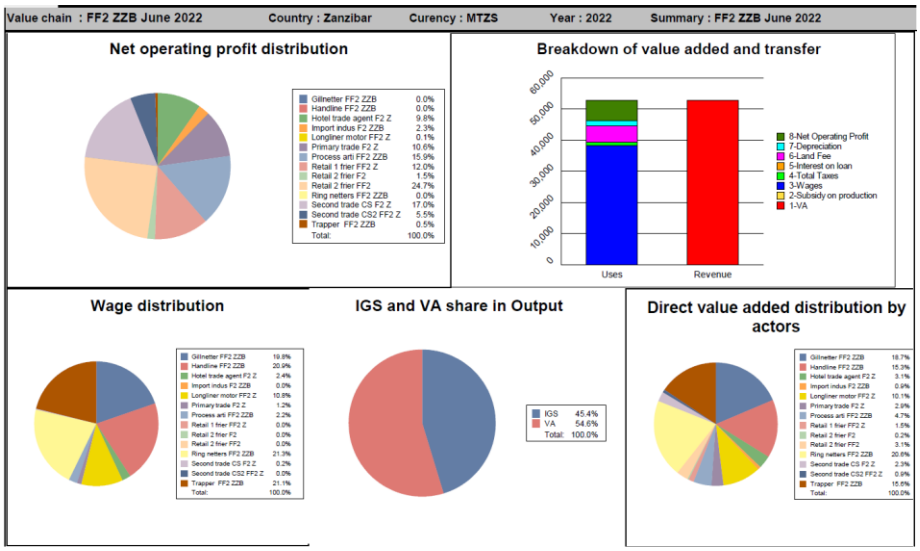




Profitability

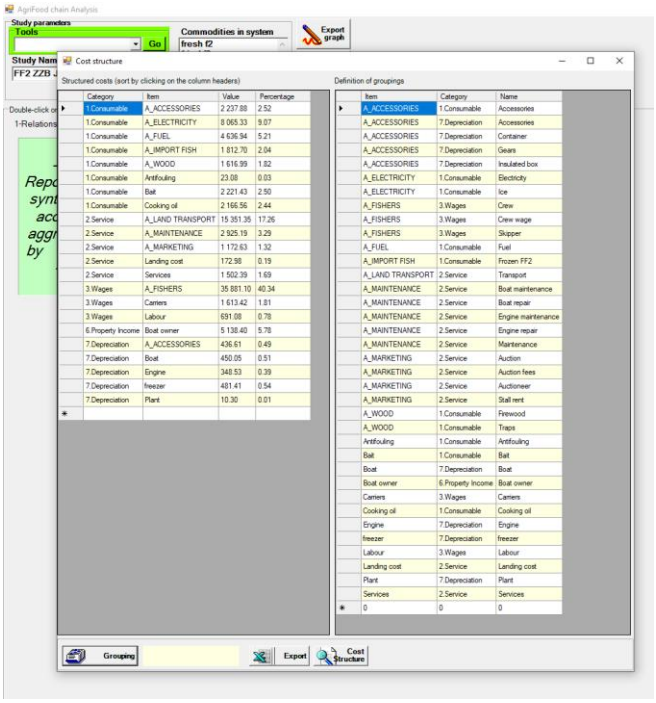
Table: Details accounts

Indicators by Actors and estimations of number of actors													
Actor	Output	Subsidy	IGS	VA	Wages	Tax	Interest	Land fee	Depreci	Net Ope	Volume Input	Annual	Nb of Actors
Primary trade F2 Z	51 304	0	49 771	1 533	455	375	0	0	0	703	8 308.00	12.41	669
Second trade CS F2 Z	17 996	0	16 776	1 219	89	1	0	0	0	1 130	2 368.00	14.00	169
Retail 2 frier F2	5 949	0	5 841	108	0	6	0	0	0	102	675.00	6.00	113
Hotel trade agent F2 Z	24 610	0	22 946	1 664	900	88	0	0	24	651	3 157.00	78.00	40
Second trade CS2 FF2	3 096	0	2 636	460	16	79	0	0	0	366	417.00	14.00	30
Import indus F2 ZZB	2 502	0	2 039	463	2	298	0	0	11	151	417.00	135.00	3
Retail 1 frier FF2 Z	18 943	0	18 126	817	0	22	0	0	0	795	2 368.00	6.00	395
Longliner motor FF2 Z	7 650	0	2 321	5 329	4 134	16	0	949	227	4	1 700.00	12.00	142
Ring netters FF2 ZZB	13 500	0	2 616	10 884	8 138	67	0	2 519	156	3	3 000.00	39.00	77
Gillnetter FF2 ZZB	13 500	0	3 600	9 900	7 560	39	0	1 670	630	1	3 000.00	15.00	200
Handline FF2 ZZB	11 250	0	3 174	8 076	7 982	38	0	0	54	2	2 500.00	5.60	446
Trapper FF2 ZZB	9 900	0	1 640	8 260	8 067	62	0	0	95	35	2 200.00	3.00	733
Retail 2 frier FF2	18 670	0	17 009	1 661	0	18	0	0	0	1 643	1 965.00	6.00	328
Process arti FF2 ZZB	27 621	0	25 154	2 467	842	36	0	0	530	1 059	4 092.00	3.40	1 204
VALUE CHAIN	96 746	0	43 905	52 841	38 186	1 144	0	5 138	1 727	50 551	----------	4 548	



Cost structure

After grouping

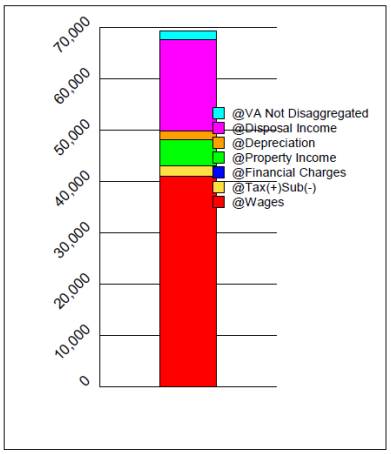


Total effects

Direct and indirect effects (MTZS)

	Direct effects	Indirect effects	Total effects
Imports	0	14 774	14 774
IC not disaggregated		13 852	13 852
Value added			
Wages	39 028	1 989	41 017
Taxes	*1 144*		
Subsidy	*0*		
Tax (+) Sub (-)	1 144	864	2 008
Interest on loan	0	0	0
Land Fee	5 138	0	5 138
Depreciation	1 727	0	1 727
Net Operating Profit	7 109	10 607	17 717
VA not disag.		1 819	1 819
VA Total	54 147	15 279	69 426

Total Value Added distribution (MTZS)



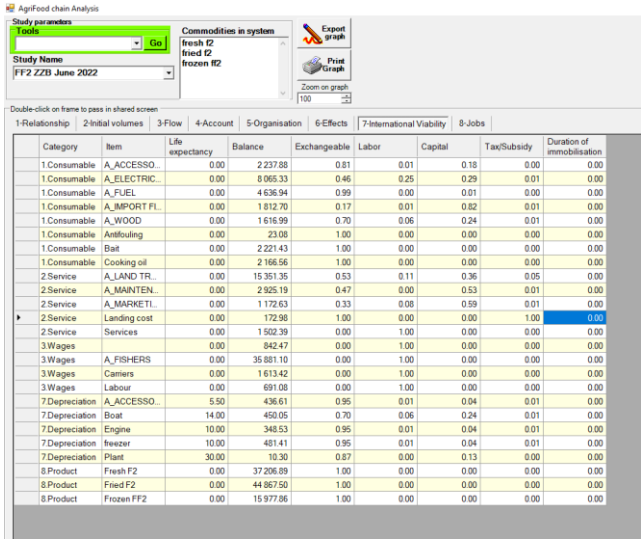
Macro-économic effects indicators

VC VAT/GDP	1.7%	
VC VAT/Vc Output	70.8%	**with Vc Output 98,052.25 MTZS**
VC VAT/Agricutural GDP	7.9%	
VC Tot. Import/ N. Imports	2.0%	
VC Export/Total Export	0.0%	
VC Trade Balance	-14 774.5	
VC Trade Balance/ N Imports	-2.0%	
VC T. Net Transfer/State budget	0.2%	
VC T. Wages/N.Wages	16.3%	
VC Tot. Disposal Income/Nat. Incom	2.3%	

Reference

Agricultural GDP	875 200	MTZS
Disposal income	787 163	MTZS
GDP	4 147 000	MTZS
National Export	48 573	MTZS
National Import	755 311	MTZS
State budget	1 024 598	MTZS
Value Chain Export	0	MTZS
Wages	251 571	MTZS

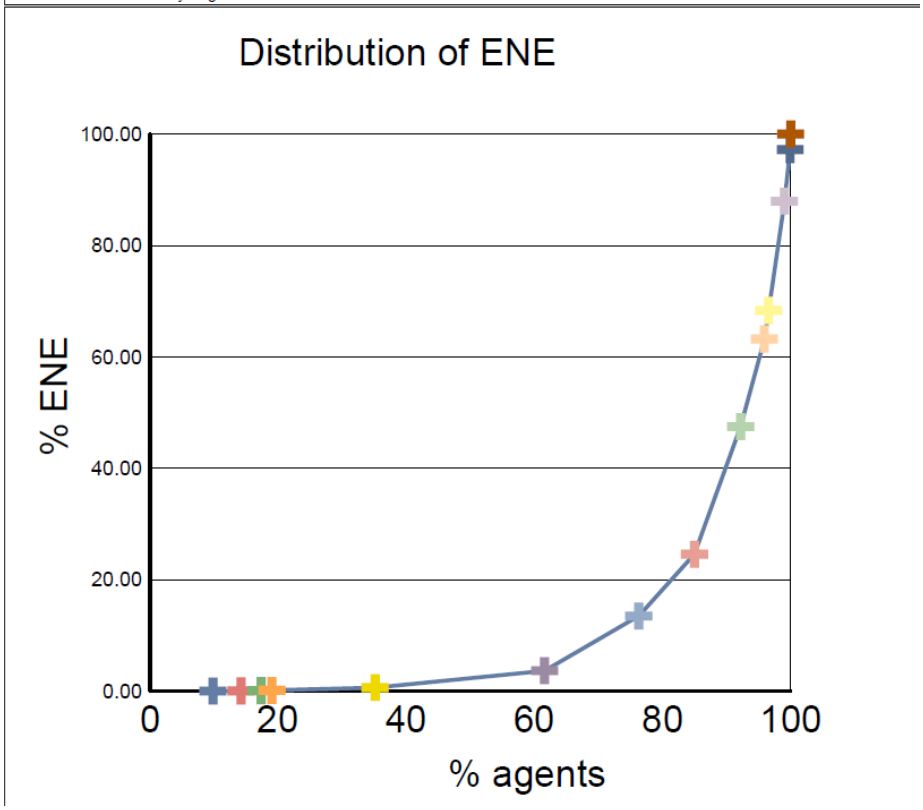
International



Category	Item	Life expectancy	Balance	Exchangeable	Labor	Capital	Tax/Subsidy	Duration of immobilisation
1.Consumable	A_ACCESSO...	0.00	2 237.88	0.81	0.01	0.18	0.00	0.00
1.Consumable	A_ELECTRIC...	0.00	8 065.33	0.46	0.25	0.29	0.01	0.00
1.Consumable	A_FUEL	0.00	4 636.94	0.99	0.00	0.01	0.00	0.00
1.Consumable	A_IMPORT FI...	0.00	1 812.70	0.17	0.01	0.82	0.01	0.00
1.Consumable	A_WOOD	0.00	1 616.99	0.70	0.06	0.24	0.01	0.00
1.Consumable	Antifouling	0.00	23.08	1.00	0.00	0.00	0.00	0.00
1.Consumable	Bait	0.00	2 221.43	1.00	0.00	0.00	0.00	0.00
1.Consumable	Cooking oil	0.00	2 166.56	1.00	0.00	0.00	0.00	0.00
2.Service	A_LAND TR...	0.00	15 351.35	0.53	0.11	0.36	0.05	0.00
2.Service	A_MAINTEN...	0.00	2 925.19	0.47	0.00	0.53	0.01	0.00
2.Service	A_MARKETI...	0.00	1 172.63	0.33	0.08	0.59	0.01	0.00
2.Service	Landing cost	0.00	172.98	1.00	0.00	0.00	1.00	0.00
2.Service	Services	0.00	1 502.39	0.00	1.00	0.00	0.00	0.00
3.Wages		0.00	842.47	0.00	1.00	0.00	0.00	0.00
3.Wages	A_FISHERS	0.00	35 881.10	0.00	1.00	0.00	0.00	0.00
3.Wages	Carriers	0.00	1 613.42	0.00	1.00	0.00	0.00	0.00
3.Wages	Labour	0.00	691.08	0.00	1.00	0.00	0.00	0.00
7.Depreciation	A_ACCESSO...	5.50	436.61	0.95	0.01	0.04	0.01	0.00
7.Depreciation	Boat	14.00	458.05	0.70	0.06	0.24	0.01	0.00
7.Depreciation	Engine	10.00	348.53	0.95	0.01	0.04	0.01	0.00
7.Depreciation	freezer	10.00	481.41	0.95	0.01	0.04	0.01	0.00
7.Depreciation	Plant	30.00	10.30	0.87	0.00	0.13	0.00	0.00
8.Product	Fresh F2	0.00	37 206.89	1.00	0.00	0.00	0.00	0.00
8.Product	Fried F2	0.00	44 867.50	1.00	0.00	0.00	0.00	0.00
8.Product	Frozen FF2	0.00	15 977.86	1.00	0.00	0.00	0.00	0.00

Inclusiveness

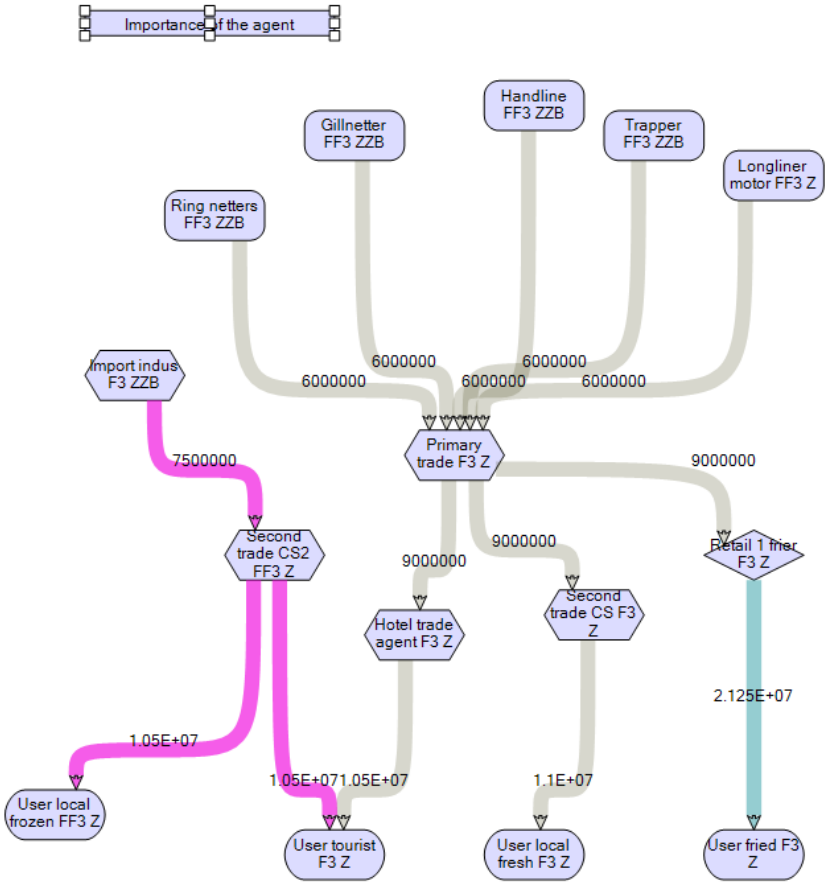
Gini coefficient of the value chain: 0.7707
0: Fair distribution 1: Totally inegalitarian

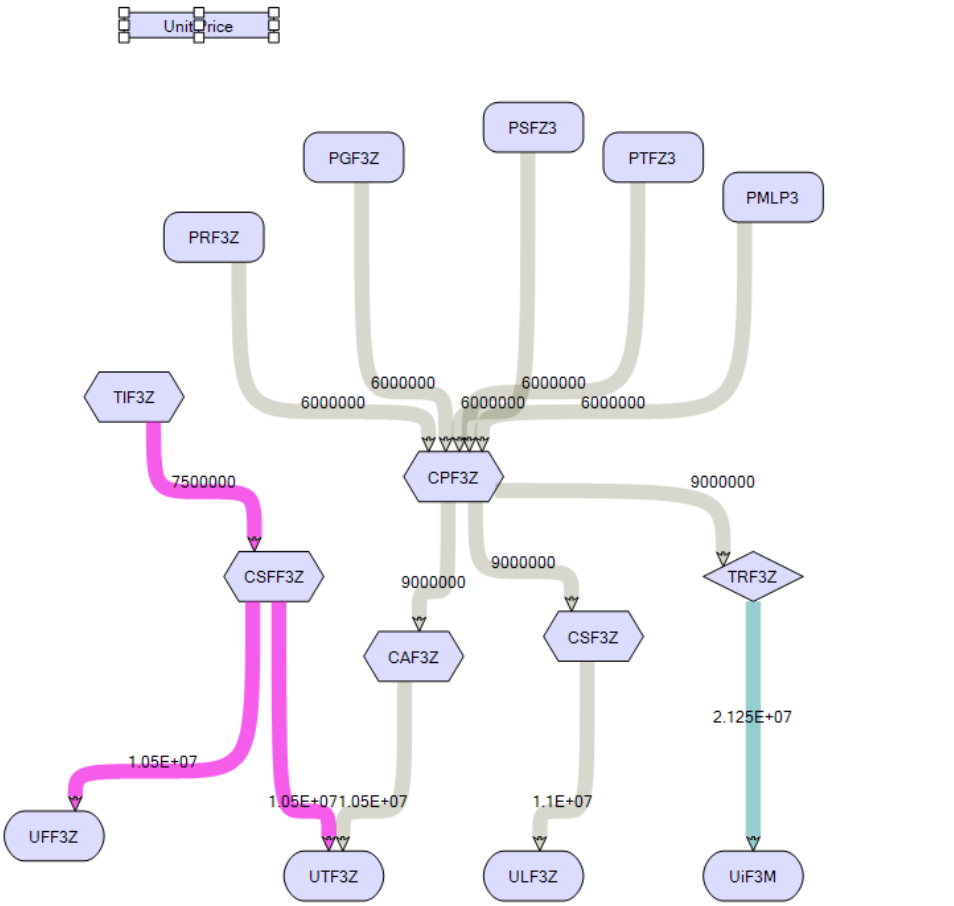


Sub-Chain FF3 in ZNZ

17/06/22

Actors, prices, flows

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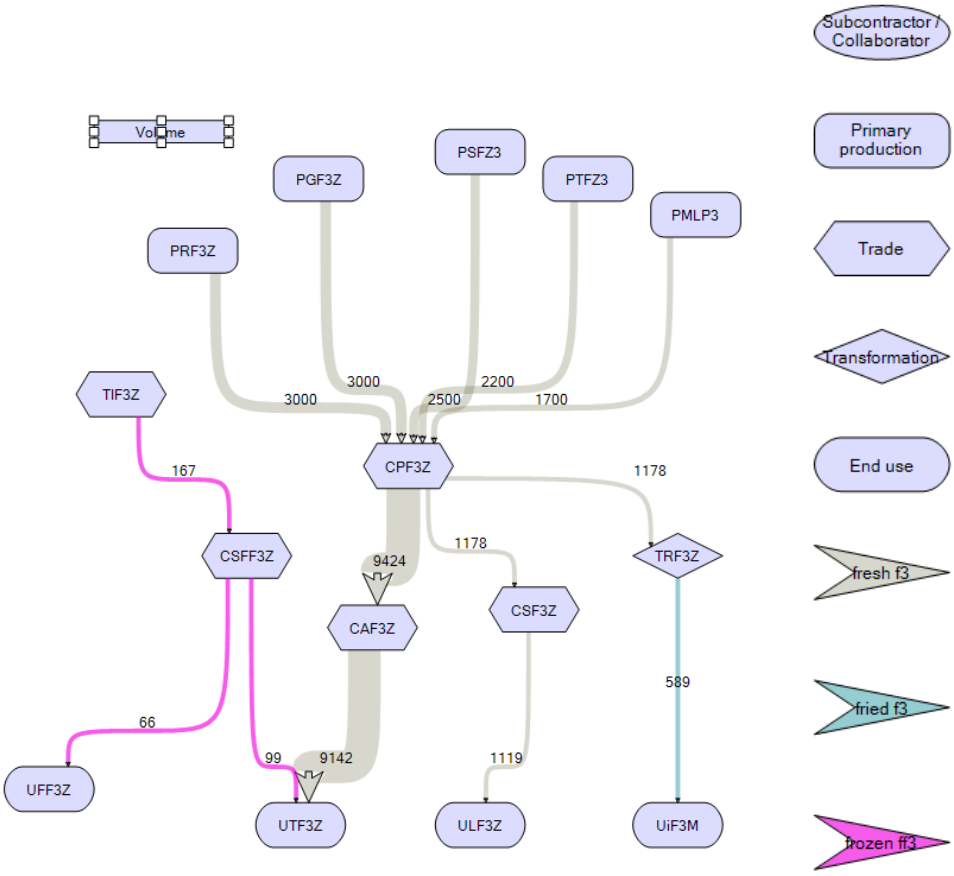
PGF3Z
PTFZ3
PMLP3
PRF3Z
TIF3Z
6000000
6000000
6000000
6000000
6000000
CPF3Z
7500000
9000000
CSFF3Z
9000000
9000000
TRF3Z
CAF3Z
CSF3Z
2.125E+07
1.05E+07
1.05E+07
1.05E+07
1.1E+07
UFF3Z
UTF3Z
ULF3Z
UiF3M

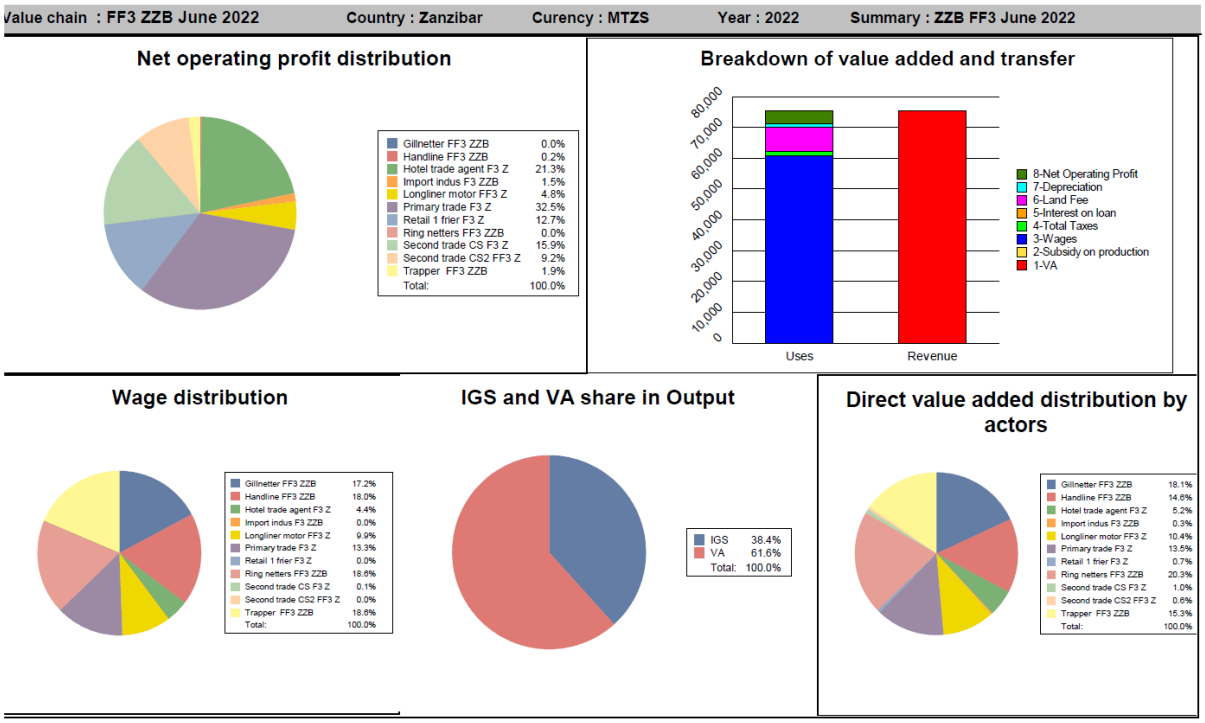

Volume
PSFZ3
PGF3Z
PTFZ3
PMLP3
PRF3Z
TIF3Z
3000
3000
2500
2200
1700
CPF3Z
167
1178
CSFF3Z
1178
9424
TRF3Z
CAF3Z
CSF3Z
589
66
99
9142
1119
UFF3Z
UTF3Z
ULF3Z
UiF3M
Subcontractor / Collaborator
Primary production
Trade
Transformation
End use
fresh f3
fried f3
frozen f3

Profitability

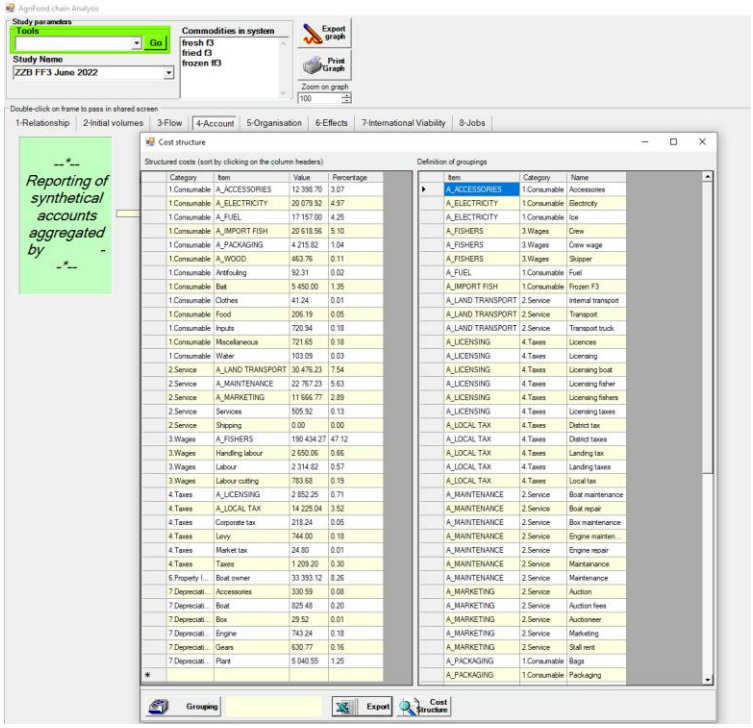
Table: Details accounts

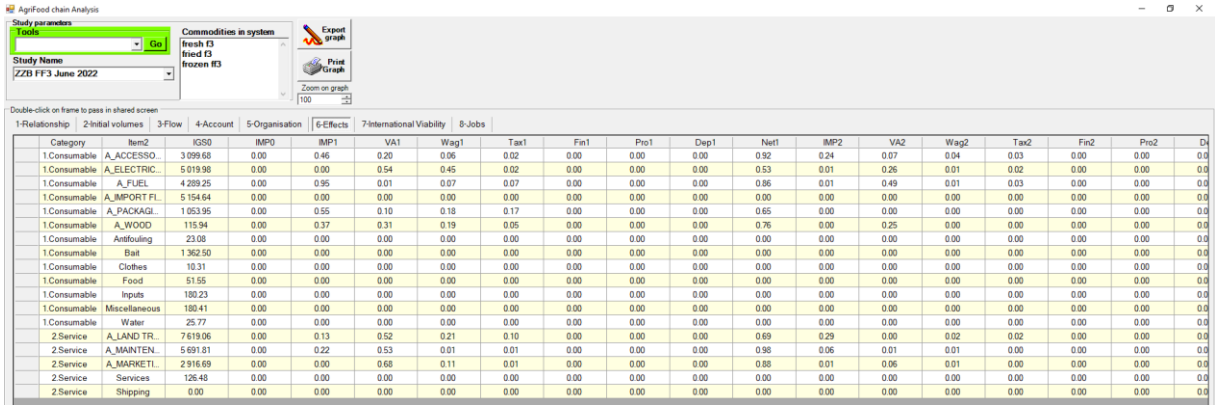
Indicators by Actors and estimations of number of actors													
Actor	Output	Subsidy	IGS	VA	Wages	Tax	Interest	Land fee	Depreci	Net Ope	Volume Input /	Annual	Nb of Actors
Primary trade F3 Z	106 024	0	95 823	10 202	8 073	739	0	0	2	1 387	12 400.00	12.41	999
Second trade CS F3 Z	12 311	0	11 586	725	44	0	0	0	0	680	1 178.00	14.00	84
Second trade CS2 FF3 Z	1 736	0	1 306	430	6	32	0	0	0	392	167.00	14.00	12
Ring netters FF3 ZZB	18 000	0	2 661	15 339	11 315	67	0	3 800	156	1	3 000.00	39.00	77
Gillnetter FF3 ZZB	18 000	0	4 312	13 688	10 464	39	0	2 554	630	1	3 000.00	15.00	200
Handline FF3 ZZB	15 000	0	3 955	11 045	10 946	38	0	0	54	7	2 500.00	5.60	446
Trapper FF3 ZZB	13 200	0	1 670	11 530	11 293	62	0	0	95	79	2 200.00	3.00	733
Longliner motor FF3 Z	10 200	0	2 346	7 854	6 027	16	0	1 380	227	205	1 700.00	12.00	142
Hotel trade agent F3 Z	95 988	0	92 057	3 930	2 682	264	0	0	72	912	9 424.00	78.00	121
Import indus F3 ZZB	1 253	0	1 034	219	1	143	0	0	11	64	167.00	54.00	3
Retail 1 frier F3 Z	12 517	0	11 963	554	0	11	0	0	0	543	1 178.00	6.00	196
VALUE CHAIN	122 551	0	47 036	75 515	60 853	1 410	0	7 734	1 247	51 307	----------	3 014	

From consolidated accounts



Effects



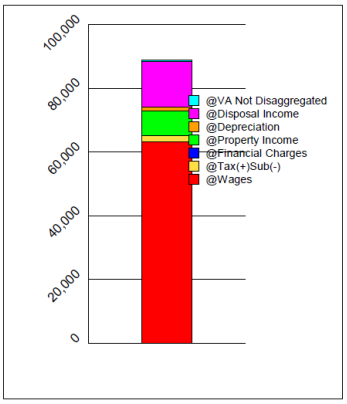


Category	Item2	IGS0	IMP0	IMP1	VA1	Wag1	Tax1	Fin1	Pro1	Dep1	Net1	IMP2	VA2	Wag2	Tax2	Fin2	Pro2	D
1.Consumable	A_ACCESSO...	3 099.68	0.00	0.46	0.20	0.06	0.02	0.00	0.00	0.00	0.92	0.24	0.07	0.04	0.03	0.00	0.00	0.0
1.Consumable	A_ELECTRIC...	5 019.98	0.00	0.00	0.54	0.45	0.02	0.00	0.00	0.00	0.53	0.01	0.26	0.01	0.02	0.00	0.00	0.0
1.Consumable	A_FUEL	4 289.25	0.00	0.95	0.01	0.07	0.07	0.00	0.00	0.00	0.86	0.01	0.49	0.01	0.03	0.00	0.00	0.0
1.Consumable	A_IMPORT FI...	5 154.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0
1.Consumable	A_PACKAGI...	1 053.95	0.00	0.55	0.10	0.18	0.17	0.00	0.00	0.00	0.65	0.00	0.00	0.00	0.00	0.00	0.00	0.0
1.Consumable	A_WOOD	115.94	0.00	0.37	0.31	0.19	0.05	0.00	0.00	0.00	0.76	0.00	0.25	0.00	0.00	0.00	0.00	0.0
1.Consumable	Antifouling	23.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0
1.Consumable	Bait	1 362.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0
1.Consumable	Clothes	10.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0
1.Consumable	Food	51.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0
1.Consumable	Inputs	180.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0
1.Consumable	Miscellaneous	180.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0
1.Consumable	Water	25.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0
2.Service	A_LAND TR...	7 619.06	0.00	0.13	0.52	0.21	0.10	0.00	0.00	0.00	0.69	0.29	0.00	0.02	0.02	0.00	0.00	0.0
2.Service	A_MAINTEN...	5 691.81	0.00	0.22	0.53	0.01	0.01	0.00	0.00	0.00	0.98	0.06	0.01	0.01	0.00	0.00	0.00	0.0
2.Service	A_MARKETI...	2 916.69	0.00	0.00	0.68	0.11	0.01	0.00	0.00	0.00	0.88	0.01	0.06	0.01	0.00	0.00	0.00	0.0
2.Service	Services	126.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0
2.Service	Shipping	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0

Direct and indirect effects (MTZS)

	Direct effects	Indirect effects	Total effects
Imports	0	9 512	9 512
IC not disaggregated		14 095	14 095
Value added			
Wages	60 853	2 377	63 229
Taxes	*1 410*		
Subsidy	*0*		
Tax (+) Sub (-)	1 410	552	1 962
Interest on loan	0	0	0
Land Fee	7 734	0	7 734
Depreciation	1 247	0	1 247
Net Operating Profit	4 272	9 887	14 158
VA not disag.		499	499
VA Total	75 515	13 315	88 830

Total Value Added distribution (MTZS)



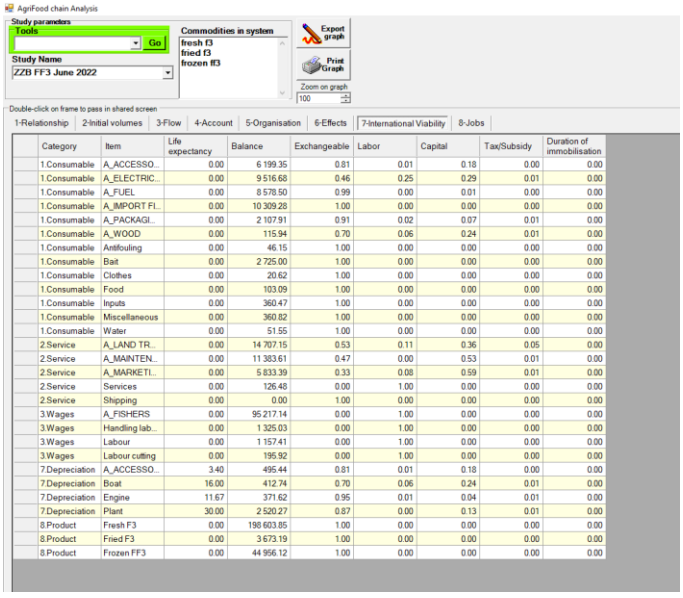
Macro-économic effects indicators

VC VAT/GDP	2.1%	
VC VAT/Vc Output	72.5%	with Vc Output 122,550.88 MTZS
VC VAT/Agricutural GDP	10.1%	
VC Tot. Import/ N. Imports	1.3%	
VC Export/Total Export	0.0%	
VC Trade Balance	-9 511.7	
VC Trade Balance/ N Imports	-1.3%	
VC T. Net Transfer/State budget	0.2%	
VC T. Wages/N.Wages	25.1%	
VC Tot. Disposal Income/Nat. Incom	1.8%	

Reference

Agricultural GDP	875 200 MTZS
Disposal income	787 163 MTZS
GDP	4 147 000 MTZS
National Export	48 573 MTZS
National Import	755 311 MTZS
State budget	1 024 593 MTZS
Value Chain Export	0 MTZS
Wages	251 571 MTZS

International



	Category	Item	Life expectancy	Balance	Exchangeable	Labor	Capital	Tax/Subsidy	Duration of immobilisation
1	1.Consumable	A_ACCESSO...	0.00	6 199.35	0.81	0.01	0.18	0.00	0.00
2	1.Consumable	A_ELECTRIC...	0.00	9 516.68	0.46	0.25	0.29	0.01	0.00
3	1.Consumable	A_FUEL	0.00	8 578.50	0.99	0.00	0.01	0.00	0.00
4	1.Consumable	A_IMPORT FI...	0.00	10 309.28	1.00	0.00	0.00	0.00	0.00
5	1.Consumable	A_PACKAGI...	0.00	2 107.91	0.91	0.02	0.07	0.01	0.00
6	1.Consumable	A_WOOD	0.00	115.94	0.70	0.06	0.24	0.01	0.00
7	1.Consumable	Antifouling	0.00	46.15	1.00	0.00	0.00	0.00	0.00
8	1.Consumable	Bait	0.00	2 725.00	1.00	0.00	0.00	0.00	0.00
9	1.Consumable	Clothes	0.00	20.62	1.00	0.00	0.00	0.00	0.00
10	1.Consumable	Food	0.00	103.09	1.00	0.00	0.00	0.00	0.00
11	1.Consumable	Inputs	0.00	360.47	1.00	0.00	0.00	0.00	0.00
12	1.Consumable	Miscellaneous	0.00	360.82	1.00	0.00	0.00	0.00	0.00
13	1.Consumable	Water	0.00	51.55	1.00	0.00	0.00	0.00	0.00
14	2.Service	A_LAND TR...	0.00	14 707.15	0.53	0.11	0.36	0.05	0.00
15	2.Service	A_MAINTEN...	0.00	11 383.61	0.47	0.00	0.53	0.01	0.00
16	2.Service	A_MARKETI...	0.00	5 833.39	0.33	0.08	0.59	0.01	0.00
17	2.Service	Services	0.00	126.48	0.00	1.00	0.00	0.00	0.00
18	2.Service	Shipping	0.00	0.00	1.00	0.00	0.00	0.00	0.00
19	3.Wages	A_FISHERS	0.00	95 217.14	0.00	1.00	0.00	0.00	0.00
20	3.Wages	Handling lab...	0.00	1 325.03	0.00	1.00	0.00	0.00	0.00
21	3.Wages	Labour	0.00	1 157.41	0.00	1.00	0.00	0.00	0.00
22	3.Wages	Labour cutting	0.00	195.92	0.00	1.00	0.00	0.00	0.00
23	7.Depreciation	A_ACCESSO...	3.40	495.44	0.81	0.01	0.18	0.00	0.00
24	7.Depreciation	Boat	16.00	412.74	0.70	0.06	0.24	0.01	0.00
25	7.Depreciation	Engine	11.67	371.62	0.95	0.01	0.04	0.01	0.00
26	7.Depreciation	Plant	30.00	2 520.27	0.87	0.00	0.13	0.01	0.00
27	8.Product	Fresh F3	0.00	198 603.85	1.00	0.00	0.00	0.00	0.00
28	8.Product	Fried F3	0.00	3 673.19	1.00	0.00	0.00	0.00	0.00
29	8.Product	Frozen FF3	0.00	44 956.12	1.00	0.00	0.00	0.00	0.00

Category	Item	Life time	Balance	Tradable	Labor	Capital	+Txv / -Sub	Revolv	OutM	InpM	LabM	CapM	OutP	InpP	LabP	CapP
Intermediate Totals								0.00	247 233	52 174	102 630	27 171	247 233	51 640	102 630	27 171

TRANSFERS

	Tax/Sub on tradable		Other transfer		Interest on lease	Total
	Output	Input	Tax on Op.	Subs. on Op.		
Prod +Sub/-Tax Output	0					
Prod -Sub/-Tax Input		0				
Tax on Operation			1 410			
Subs on Operation				0		
Financial Charge					0	
Total Transfert Market	0	0	1 410	0	0	1 410

VALUE AT PARITY PRICES

	Tradable		Domestics Factors		Transfers	Profit
	Output	Input	Wage	Capital		
Market price	247 233	52 174	102 630	27 171	1 410	63 848
Parity price	247 233	51 640	102 630	27 171		65 792
Divergence	0	534	0	0	1 410	-1 944

ACCRONYMS

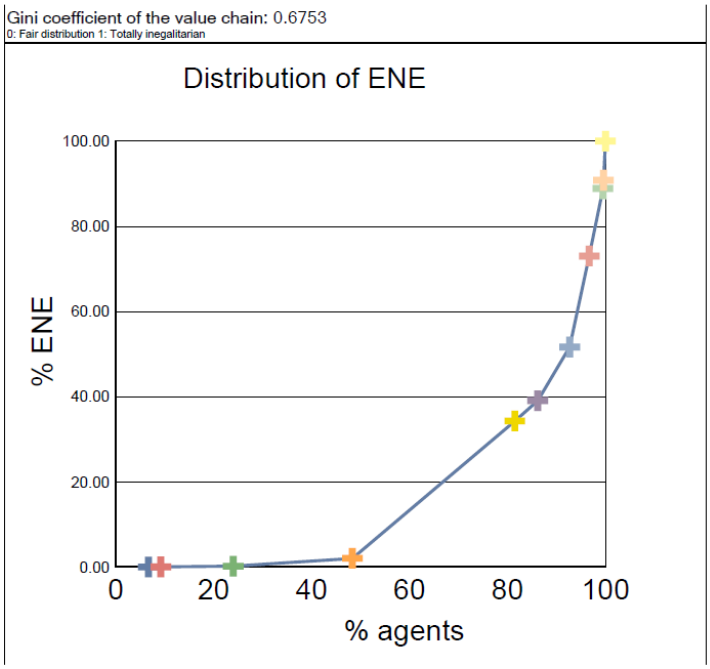
+Txv / -Sub Ad Valorem Taxe or Subisidy on Tradable

Term	Does not apply
OutM	Output value at Market price
InpM	Intermediate Good and Services value at Market Price
LabM	Labor value at Market price
CapM	Capital value at Market Price
OutP	Output value at Parity Price
InpP	Intermediate Good and Services value at Parity Price
LabP	Labor value at Parity Price
CapP	Capital value at Parity Price

INDICATORS

Dometic Ressource Cost	0.52
Nominal Protection Coefficient	1.00
Effective Protection Coefficient	1.00
Equivalent producer subsidy	-0.01

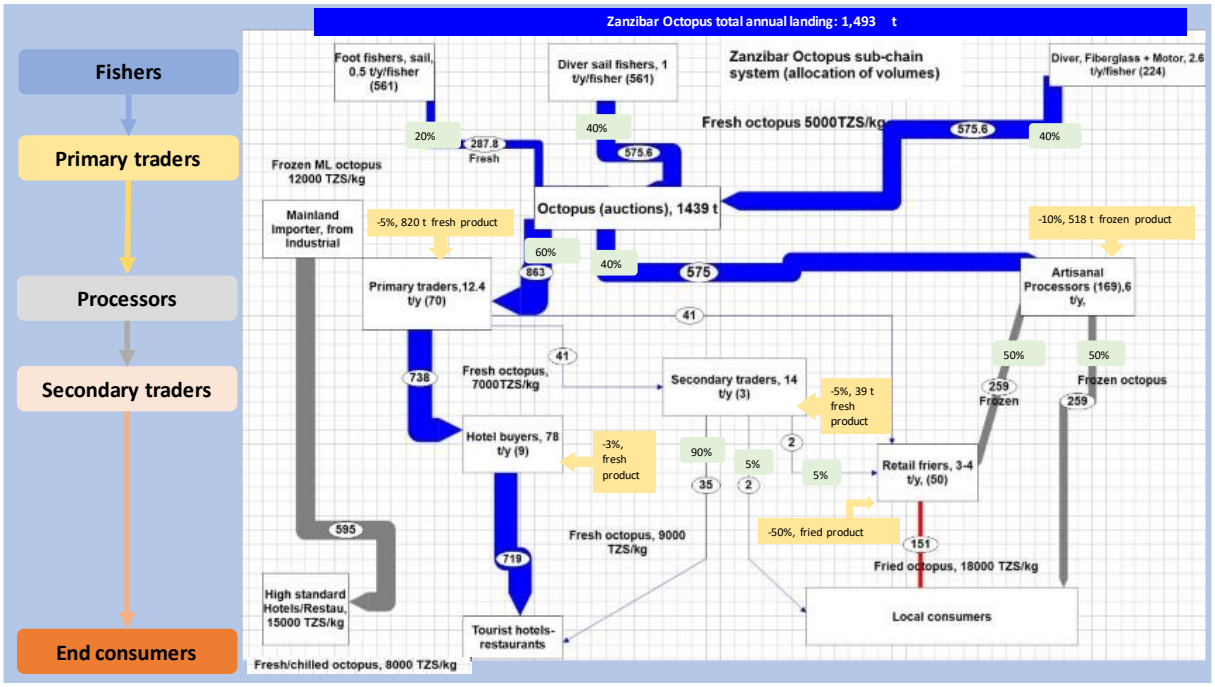
Inclusiveness



Octopus sub-chain Final in ZNZ (20/07/22)

15/06/22

Functional analysis

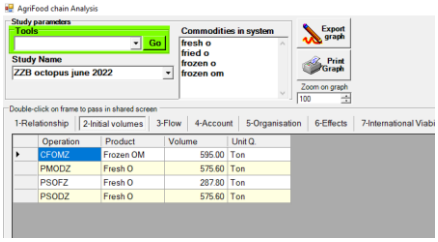


Volumes of production

Cf MRAG, Blue Ventures 2019 + Mwambao

Department of Fisheries Development (2019). Octopus Fisheries Management Plan. Ministry of Agriculture, Natural Resources, Livestock and Fisheries, Zanzibar. 90 pp.

Hypothesis of annual catches of 1439 t



		vol foot		diver		tot vol					Primary traders	
	20%	287.8		0	PSOFZ	**1439**	**287.8**	Foot	20%	Hotel agent	90%
	40%			575.6	PSODZ		**1151.2**	**diver**	**80%**	local	10%
	40%			575.6	PMODZ						
		287.8		1151.2		1439					
frozen from ML		595					1439				
				independant fishers, 3 on-board, either by sail or by FG						50l fuel/trip	
				foot fishers : only by sail							

Actors

Fishers

Fishers		**3**	**nb of trips/m**	**Nb of month**	**per year**			et Arianna	May 2022					
Zanzibar		2022	**20**	**11**		**220**	**trip/year**					**PSOFZ**		
octopus foot fishers		basis												
	catch in	pieces		good trip				**0.5**	**t/y/fisher**					
	kg		**7.0**	average trip							average catch			pieces/trip
	price	**5000**			TZS/kg						**average catch**		**7.0**	**kg/trip**
	Catch in kg										**average per month**		**0.14**	**t/m**
	Income in TZS					per trip		**pey year**	**in MTZ**		**average t per y/boat**		**1.54**	**t/y**
						0.007	t	1.5			**avergae income /y/boat**		**7.7**	**MTZ**
	income			**average trip**	**7.0**	**35000**		**7.70**	11.858					
	Landing fees	no fees covered by the fishers												
	Auction fees	covered by the fishers		1%		350		0.08	0.15					
	landing fees	covered by the fishers		0		0		0.00	0.05					
	net income					34650.0		7.6						
	variable cost	**covered by the min sum to leave for a trip**												
	diving accessories		cf ML	0.09 MTZS/diver/y				0.27		et invest gears/y				
	accessories boat					cf ML		1.10						
	profit to be shared	**in this case, before fixed costs**						6.25						
	boat maintenance		**20%**			20000.0		1.25	in Maintenance cost					
	Wages													
	crew after trip		80%			0.0		5.00	**1.66746667**					
	crew membe	**3**									**AFA**	**1.595**		
	licensing	30000/each		90000				0.0900						
	boat licensing	25000						0.0250						
							profit/y	4.84						
						profit/m	profit/y/fishe	1.61						
						0.1								
						in MTZ	in MTZ							
						per year	**per m**	**n USD/month**						
	profit/fisher					**1.6**	**0.13431667**	**58**						
								depreciation						
			Cost Per unit	Nb	Total cost	Life span (y)		per year						
	boat	7m canoe	**0.4**	1	0.4	**10**		0.04						
	sail 6m2		0.002	6	0.012	1		0.01						
	ropes and hooks		0	1	0	1		0.00						
	spears, masks		0.003	1	0.003	1		0.00						

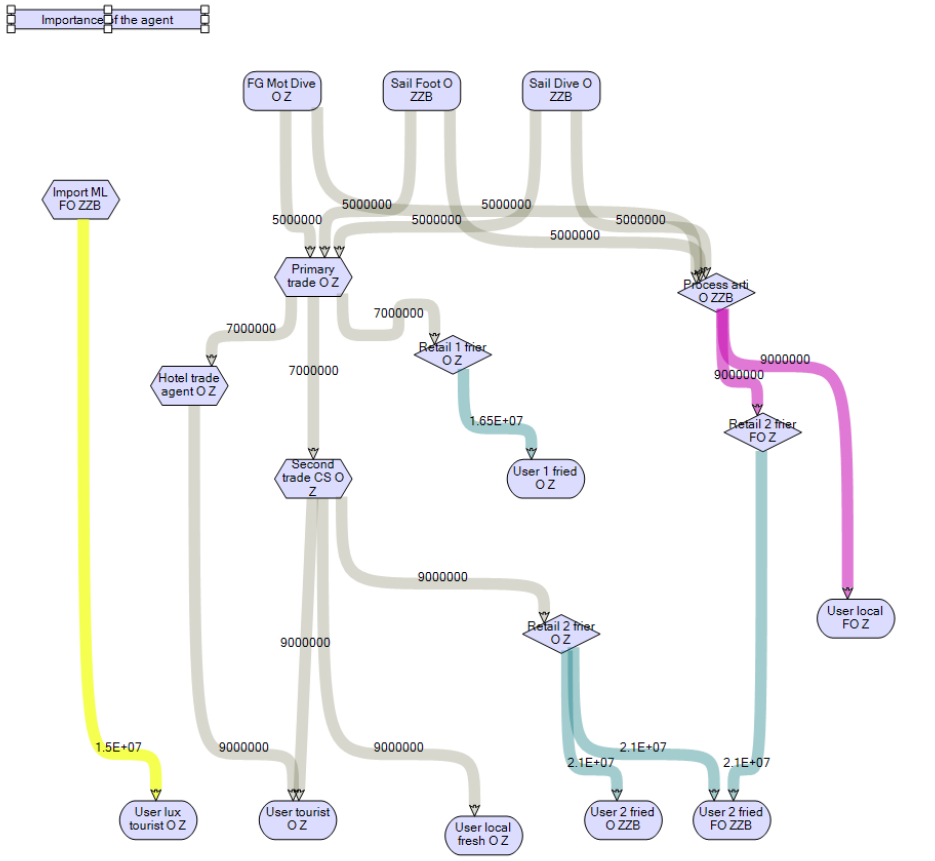
Fishers		**3**	**nb of trips/**	**Nb of month**	**per year**			et Arianna	May 2022					
Zanzibar		2022	**20**	**11**		**220**	**trip/year**					**PSODZ**		
octopus dive fishers		basis												
	catch in	pieces						**1.0**	**t/y/fisher**					
	kg		**14.0**	average trip							average catch			pieces/trip
	price	**5000**			TZS/kg						**average catch**		**14.0**	**kg/trip**
	Catch in kg										**average per month**		**0.28**	**t/m**
	Income in TZS					per trip		**pey year**	**in MTZ**		**average t per y/boat**		**3.08**	**t/y**
						0.014	t	3.1			**avergae income /y/boat**		**15.4**	**MTZ**
	income			**average trip**	**14.0**	**70000**		**15.40**	47.432					
	Landing fees	no fees covered by the fishers												
	Auction fees	covered by the fishers		1%		700		0.15	0.15					
	landing fees	covered by the fishers		0		0		0.00	0.05					
	net income					69300.0		15.2						
	variable cost	**covered by the min sum to leave for a trip**												
	diving accessories		cf ML	0.09 MTZS/diver/y				0.27		et invest gears/y				
	accessories boat					cf ML		1.10						
	profit to be shared	**in this case, before fixed costs**						13.88						
	boat maintenance		**20%**			20000.0		2.78	in Maintenance cost					
	Wages													
	crew after trip		80%			0.0		11.10	**3.70026667**					
	crew membe	**3**									**AFA**	**3.605**		
	licensing	30000/each		90000				0.0900						
	boat licensing	25000						0.0250						
							profit/y	10.87						
						profit/m	profit/y/fish	3.62						
						0.3								
						in MTZ	in MTZ							
						per year	**per m**	**USD/month**						
	profit/fisher					**3.6**	**0.30205**	**131**						
								depreciation						
			Cost Per ur	Nb	Total cost	Life span (y)		per year						
	boat	9 m canoe	**1**	1	1	**10**		0.10						
	sail 6m2		0.002	6	0.012	1		0.01						
	ropes and hooks		0	1	0	1		0.00						
	spears, masks		0.003	1	0.003	1		0.00						

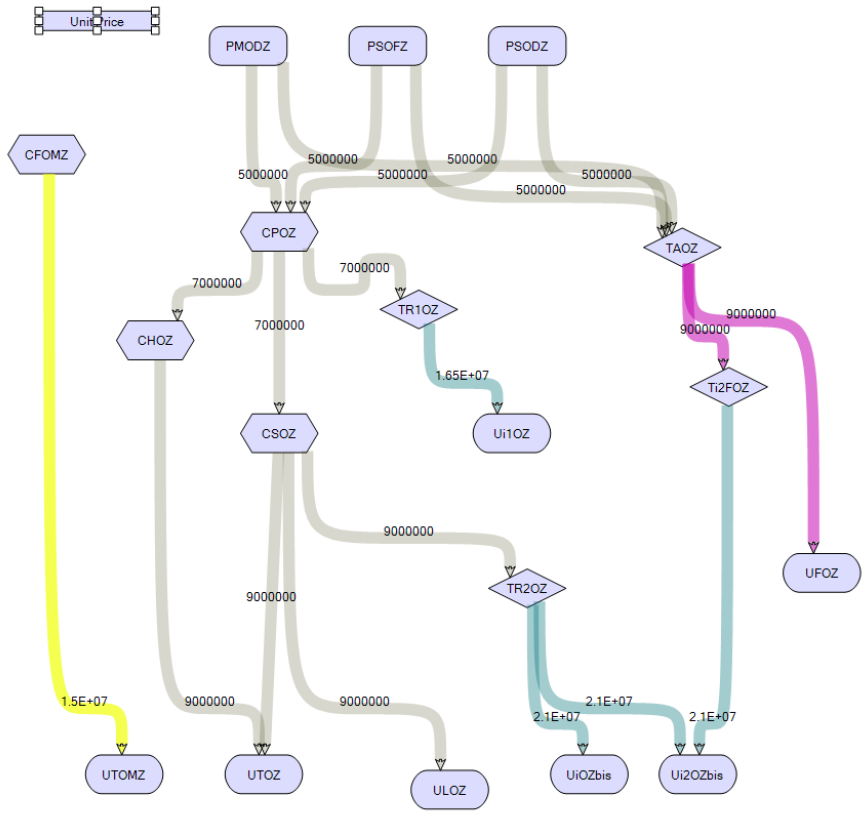
Fishers	**June 2022**		**3**	**nb of trips/m**	**Nb of month**	**per year**											
Octopus				**20**	**11**	**220**	trips/yea						**PMODZ**	5000			
fiber vessel		basis															
arianna	catch in																
	kg				**35**	**kg average/day trip**						**7.7**	**t/y**	**2.6**	**t/fisher/y**		
	price TZS/kg	3000 low	6000 high						**octopus**					**FF2**	**FF1**		
	Catch in kg								**MTZS per y**					**MTZS per y**	**MTZS per y**		
									5000					**4500**	**6000**		
						Income in MTZS			**38.50**					**34.65**	**46.20**		
	Landing fees	no fees covered by the fishers															
	Auction fees	no fees covered by the fishers				1%			**0.39**					**0.39**	**0.46**		
	landing fees	no fees covered by the fishers				0%			**0.00**					**0.00**	**0.00**		
	Net income in TZS								**38.12**					**34.27**	**45.74**		
	variable cost covered by the min sum to leave for a trip																
	fuel				**2200**	TZS/l			**24.20**					**24.20**	**24.20**		
	50	l/trip	11000	l/y													
	accessories divers					cf ML	0.09/fisher/y		**0.27**					**0.27**	**0.27**		
profit to be shared	**in this case, before fixed costs**								**13.65**					**9.80**	**21.27**		
	Wages																
	crew	**3**	75%					**3.41125**	**10.23**				**2.449**	**7.35**	**15.95**	5.32	
	boat owner	part	25%				**0.2**	**1.81**	**3.41**	placed in land fees			-0.57	**2.45**	**5.32**	less depr and fixed	
							AFA				**AFA**		**6.70**				
	fixed costs																
	repairs	engine							**1.00**					**1.00**	**1.00**		
	maintainance	boat							**0.28**					**0.28**	**0.28**		
	licensing/y	boat	50000						**0.05**					**0.05**	**0.05**		
	fisher		30000						**0.09**					**0.09**	**0.09**		
Capital depreciation																	
depreciation engine									**0.90**					**0.90**	**0.90**		
depreciation boat									**0.70**					**0.70**	**0.70**		
							in USD/month	**per m**			**in USD**		**MTZS per m**			**MTZS/m**	
	profit/fisher						**123.6**	**0.3**	**3.41**		**88.7**		**0.2**	**2.45**	**5.32**	**0.44**	**192.64**
	profit/boat owner						**65.6**	**0.2**	**1.81**		**-20.7**		**0.0**	**-0.57**	**3.72**	**0.31**	**134.67**
								in MTZ	depreciation/	Depreciation/t							
			Cost Per unit	Nb	Total cost	Life span (y)			per year								
	boat	fiberglass 11	14	1	14	**20**	1.81818182	0.7	0.09090909								
	antifouling																
	engine	15 HP Yamah	4.5	1	4.5	**5**	0.58441558	0.9									

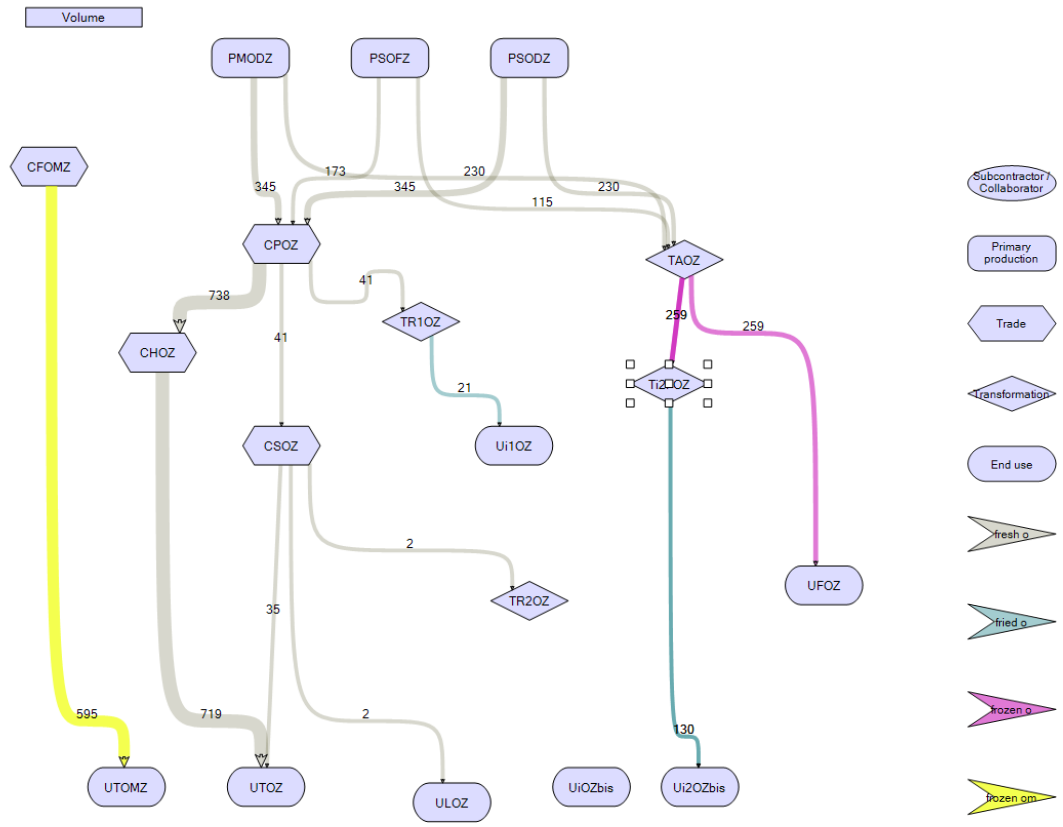
Traders/processors

Adapted from previous cases with primary data.

Volume, actor, price flows







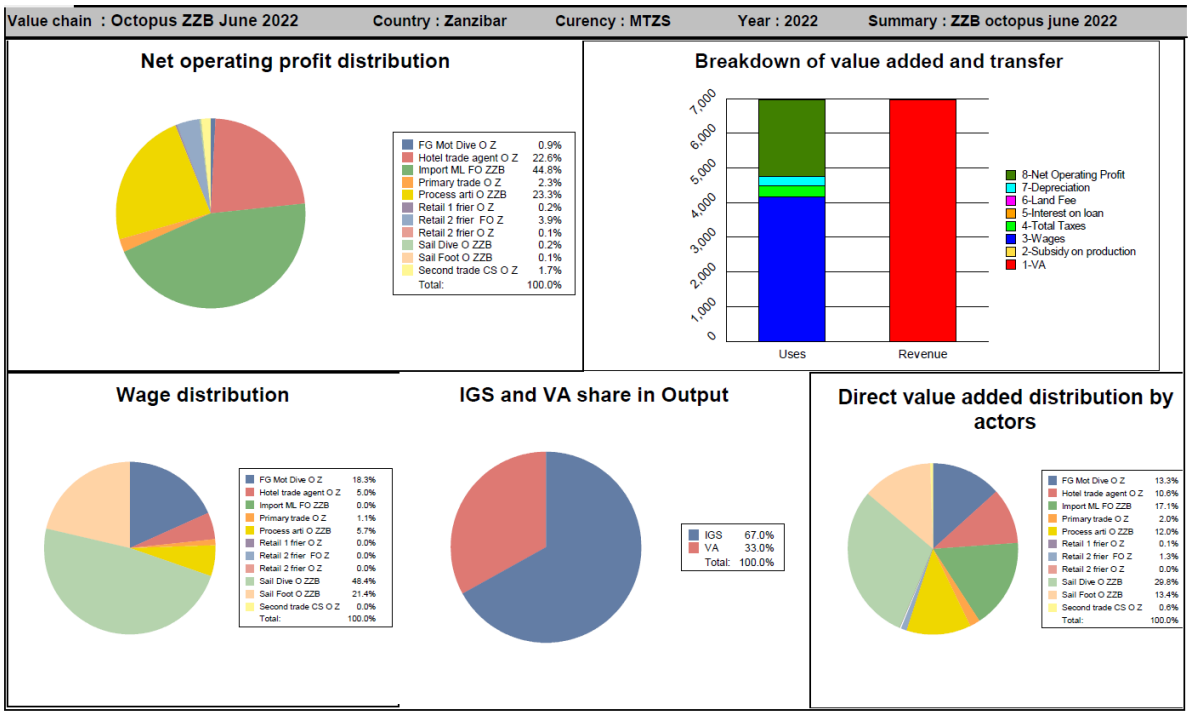
Profitability

Table : detail accounts (AFA)

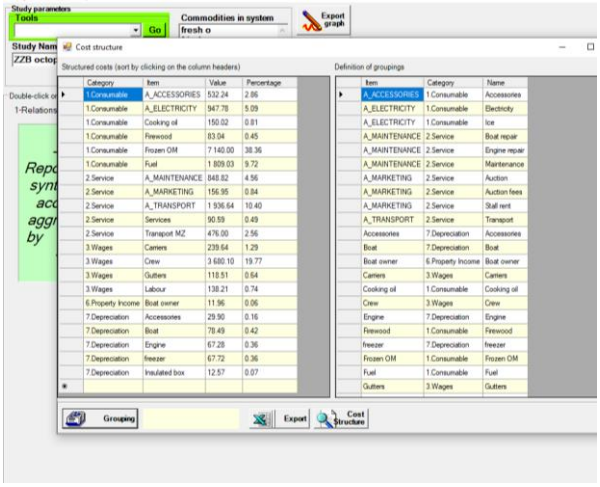
Indicators by Actors and	estimations of number of actors												
Actor	Output	Subsidy	IGS	VA	Wages	Tax	Interest	Land fee	Depreci	Net Ope	Volume Input / Outp	Annual	Nb of Ac
Primary trade O Z	5742	0	5604	138	47	39	0	0	0	51	863	12	70
Second trade CS O Z	351	0	311	40	2	0	0	0	0	38	41	14	3
Retail 2 frier O Z	20	0	19	2	0	0	0	0	0	2	2	6	0
Hotel trade agent O Z	6474	0	5735	739	210	21	0	0	6	502	738	78	9
Import ML FO ZZB	8925	0	7735	1190	0	193	0	0	0	997	595	25	24
Retail 1 frier O Z	338	0	334	4	0	0	0	0	0	4	41	6	7
FG Mot Dive O Z	2878	0	1954	924	765	8	0	12	120	19	576	8	75
Sail Foot O ZZB	1439	0	505	934	894	16	0	0	22	2	288	2	187
Retail 2 frier FO Z	2720	0	2630	89	0	2	0	0	0	87	259	6	43
Process arti O ZZB	4662	0	3826	836	237	5	0	0	74	520	575	3	169
Sail Dive O ZZB	2878	0	804	2074	2021	16	0	0	34	4	576	3	187
VALUE CHAIN	21142	0	14171	6971	4176	300	0	12	256	16397	----------	774	
	36 427	0	29 457	6 971	4 176	300	0	12	256	2 226	4 554	163	774

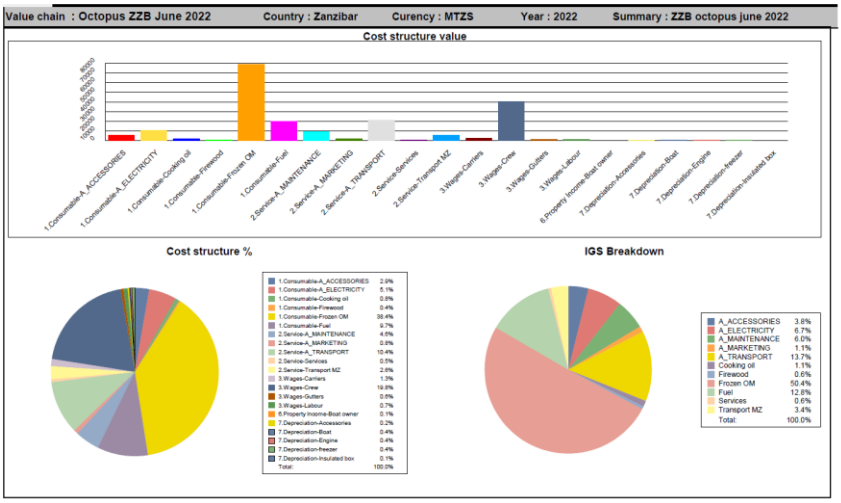
In conso accounts:

Value chain : Octopus ZZB June 2022			Country : Zanzibar		Curency : MTZS		Year : 2022		Summary : ZZB octopus june 2022			
Operating accounts per actor and for the value chain												
Actor	Product	Subsidiy	IGS	Wages	Taxes	Interest on loan	Land Fee	Depreciation	Net Operating Profit	VA	VA/Product	Nb of Actors
Primary trade O Z	5 742	0	5 604	47	39	0	0	0	51	138	2%	70
Second trade CS O Z	351	0	311	2	0	0	0	0	38	40	11%	3
Retail 2 frier O Z	20	0	19	0	0	0	0	0	2	2	8%	0
Hotel trade agent O Z	6 474	0	5 735	210	21	0	0	6	502	739	11%	9
Import ML FO ZZB	8 925	0	7 735	0	193	0	0	0	997	1 190	13%	24
Retail 1 frier O Z	338	0	334	0	0	0	0	0	4	4	1%	7
FG Mot Dive O Z	2 878	0	1 954	765	8	0	12	120	19	924	32%	75
Sail Foot O ZZB	1 439	0	505	894	16	0	0	22	2	934	65%	187
Retail 2 frier FO Z	2 720	0	2 630	0	2	0	0	0	87	89	3%	43
Process arti O ZZB	4 662	0	3 826	237	5	0	0	74	520	836	18%	169
Sail Dive O ZZB	2 878	0	804	2 021	16	0	0	34	4	2 074	72%	187
VALUE CHAIN	**21 142**	**0**	**14 171**	**4 176**	**300**	**0**	**12**	**256**	**2 226**	**6 971**	**33%**	**774**

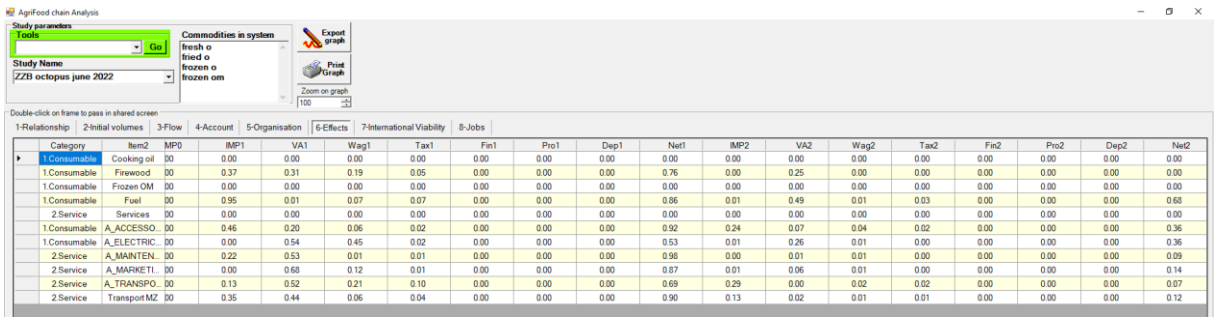


Cost structures





Effects

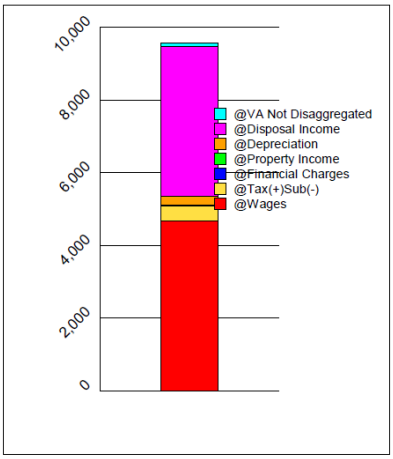


Category	Item2	MP0	IMP1	VA1	Wag1	Tax1	Fin1	Pro1	Dep1	Net1	IMP2	VA2	Wag2	Tax2	Fin2	Pro2	Dep2	Net2
1.Consumable	Cooking oil	00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.Consumable	Firewood	00	0.37	0.31	0.19	0.05	0.00	0.00	0.00	0.76	0.00	0.25	0.00	0.00	0.00	0.00	0.00	0.00
1.Consumable	Frozen OM	00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.Consumable	Fuel	00	0.95	0.01	0.07	0.07	0.00	0.00	0.00	0.86	0.01	0.49	0.01	0.03	0.00	0.00	0.00	0.68
2.Service	Services	00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.Consumable	A_ACCESSO...	00	0.46	0.20	0.06	0.02	0.00	0.00	0.00	0.92	0.24	0.07	0.04	0.02	0.00	0.00	0.00	0.36
1.Consumable	A_ELECTRIC...	00	0.00	0.54	0.45	0.02	0.00	0.00	0.00	0.53	0.01	0.26	0.01	0.00	0.00	0.00	0.00	0.36
2.Service	A_MAINTEN...	00	0.22	0.53	0.01	0.01	0.00	0.00	0.00	0.98	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.09
2.Service	A_MARKETI...	00	0.00	0.68	0.12	0.01	0.00	0.00	0.00	0.87	0.01	0.06	0.01	0.00	0.00	0.00	0.00	0.14
2.Service	A_TRANSPO...	00	0.13	0.52	0.21	0.10	0.00	0.00	0.00	0.69	0.29	0.00	0.02	0.02	0.00	0.00	0.00	0.07
2.Service	Transport MZ	00	0.35	0.44	0.06	0.04	0.00	0.00	0.00	0.90	0.13	0.02	0.01	0.01	0.00	0.00	0.00	0.12

Direct and indirect effects (MTZS)

	Direct effects	Indirect effects	Total effects
Imports	0	2 858	2 858
IC not disaggregated		8 703	8 703
Value added			
Wages	4 176	486	4 663
Taxes	*300*		
Subsidy	*0*		
Tax (+) Sub (-)	300	131	431
Interest on loan	0	0	0
Land Fee	12	0	12
Depreciation	256	0	256
Net Operating Profit	2 226	1 892	4 118
VA not disag.		102	102
VA Total	6 971	2 610	9 581

Total Value Added distribution (MTZS)



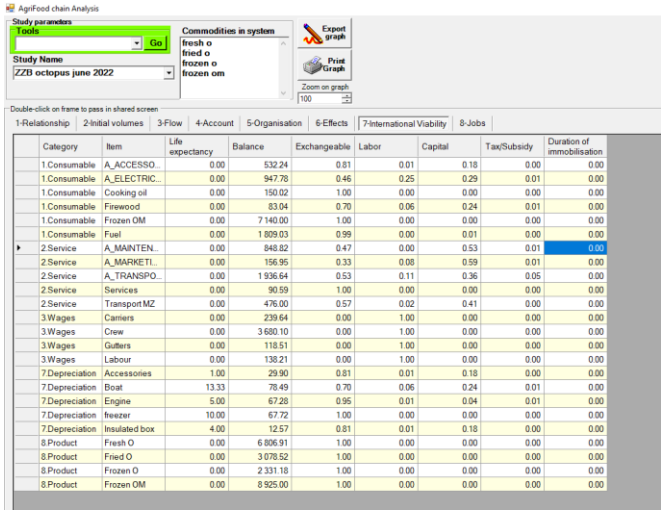
Macro-économic effects indicators

VC VAT/GDP	0.2%	
VC VAT/Vc Output	45.3%	**with Vc Output 21,141.62 MTZS**
VC VAT/Agricutural GDP	1.1%	
VC Tot. Import/ N. Imports	0.4%	
VC Export/Total Export	0.0%	
VC Trade Balance	-2 857.8	
VC Trade Balance/ N Imports	-0.4%	
VC T. Net Transfer/State budget	0.0%	
VC T. Wages/N.Wages	1.9%	
VC Tot. Disposal Income/Nat. Incom	0.5%	

Reference

Agricultural GDP	875 200	MTZS
Disposal income	787 163	MTZS
GDP	4 147 000	MTZS
National Export	48 573	MTZS
National Import	755 311	MTZS
State budget	1 024 598	MTZS
Value Chain Export	0	MTZS
Wages	251 571	MTZS

International



Category	Item	Life expectancy	Balance	Exchangeable	Labor	Capital	Tax/Subsidy	Duration of immobilisation
1.Consumable	A_ACCESSO...	0.00	532.24	0.81	0.01	0.18	0.00	0.00
1.Consumable	A_ELECTRIC...	0.00	947.78	0.46	0.25	0.29	0.01	0.00
1.Consumable	Cooking oil	0.00	150.02	1.00	0.00	0.00	0.00	0.00
1.Consumable	Firewood	0.00	83.04	0.70	0.06	0.24	0.01	0.00
1.Consumable	Frozen OM	0.00	7 140.00	1.00	0.00	0.00	0.00	0.00
1.Consumable	Fuel	0.00	1 809.03	0.99	0.00	0.01	0.00	0.00
2.Service	A_MAINTEN...	0.00	848.82	0.47	0.00	0.53	0.01	0.00
2.Service	A_MARKETI...	0.00	156.95	0.33	0.08	0.59	0.01	0.00
2.Service	A_TRANSPO...	0.00	1 936.64	0.53	0.11	0.36	0.05	0.00
2.Service	Services	0.00	90.59	1.00	0.00	0.00	0.00	0.00
2.Service	Transport MZ	0.00	476.00	0.57	0.02	0.41	0.00	0.00
3.Wages	Carriers	0.00	239.64	0.00	1.00	0.00	0.00	0.00
3.Wages	Crew	0.00	3 680.10	0.00	1.00	0.00	0.00	0.00
3.Wages	Gutters	0.00	118.51	0.00	1.00	0.00	0.00	0.00
3.Wages	Labour	0.00	138.21	0.00	1.00	0.00	0.00	0.00
7.Depreciation	Accessories	1.00	29.90	0.81	0.01	0.18	0.00	0.00
7.Depreciation	Boat	13.33	78.49	0.70	0.06	0.24	0.01	0.00
7.Depreciation	Engine	5.00	67.28	0.95	0.01	0.04	0.01	0.00
7.Depreciation	freezer	10.00	67.72	1.00	0.00	0.00	0.00	0.00
7.Depreciation	Insulated box	4.00	12.57	0.81	0.01	0.18	0.00	0.00
8.Product	Fresh O	0.00	6 806.91	1.00	0.00	0.00	0.00	0.00
8.Product	Fried O	0.00	3 078.52	1.00	0.00	0.00	0.00	0.00
8.Product	Frozen O	0.00	2 331.18	1.00	0.00	0.00	0.00	0.00
8.Product	Frozen OM	0.00	8 925.00	1.00	0.00	0.00	0.00	0.00

Category	Item	Life time	Balance	Tradable	Labor	Capital	+Txv / -Sub	Revolv	OutM	InpM	LabM	CapM	OutP	InpP	LabP	CapP
Intermediate Totals								0.00	21 142	12 066	4 665	1 885	21 142	12 007	4 665	1 885

TRANSFERS

	Tax/Sub on tradable		Other transfer		Interest on lease	Total
	Output	Input	Tax on Op.	Subs. on Op.		
Prod +Sub/-Tax Output	0					
Prod -Sub/-Tax Input		0				
Tax on Operation			300			
Subs on Operation				0		
Financial Charge					0	
Total Transfert Market	0	0	300	0	0	300

VALUE AT PARITY PRICES

	Tradable		Domestics Factors		Transfers	Profit
	Output	Input	Wage	Capital		
Market price	21 142	12 066	4 665	1 885	300	2 226
Parity price	21 142	12 007	4 665	1 885		2 586
Divergence	0	59	0	0	300	-360

ACCRONYMS

+Txv / -Sub Ad Valorem Taxe or Subisidy on Tradable

Term	Does not apply
OutM	Output value at Market price
InpM	Intermediate Good and Services value at Market Price
LabM	Labor value at Market price
CapM	Capital value at Market Price
OutP	Output value at Parity Price
InpP	Intermediate Good and Services value at Parity Price
LabP	Labor value at Parity Price
CapP	Capital value at Parity Price

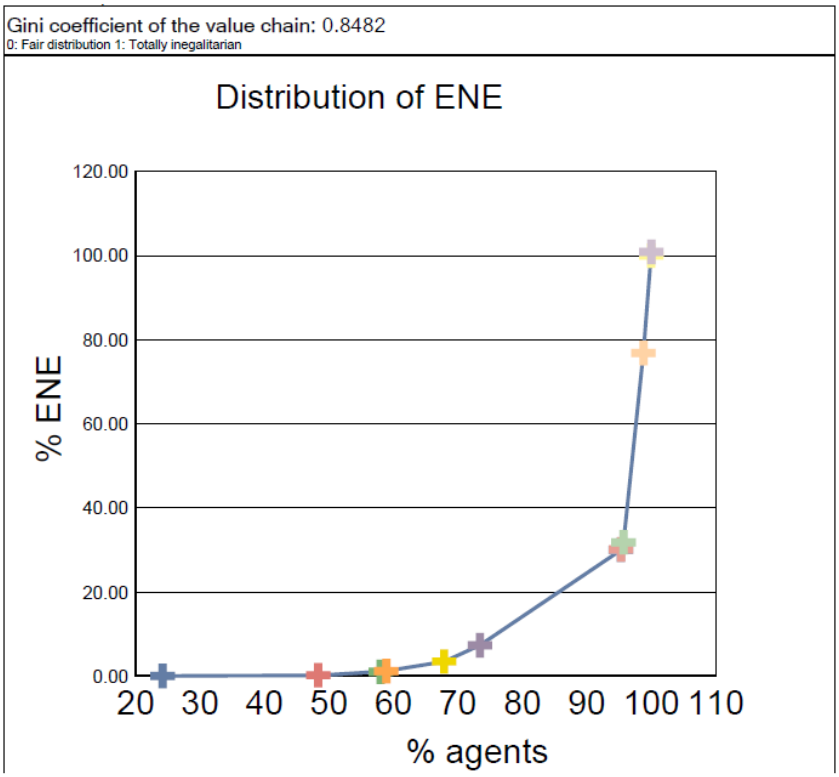
INDICATORS

Dometic Ressource Cost	0.51
Nominal Protection Coefficient	1.00
Effective Protection Coefficient	0.99
Equivalent producer subsidy	-0.02

Inclusiveness

Gini coefficient of the value chain: 0.8482

0: Fair distribution 1: Totally inegalitarian



Questionnaires used in MLT (and adapted in ZNZ):

Fishers in MLT

Tanzania- Fishers (MLT 2022) – VCA4D / Economic part

Location – Date - Name

Q Are you willing to provide details about your revenues and costs from fish-related activities? All information will be confidential.

The respondent is

a man

a woman

Are you?

A multi-day boat owner who regularly goes fishing

A multi-day boat owner who does not fish

A one-day boat owner who fish

A multi-day crew member

What is your position?

Skipper/captain

Crew member

Other (describe) _____

What is your age?

_____

How old were you when you got involved in the fishing sector? (enter age)

_____

Have you received formal training on fishing?

Which association of fishers are you a member of? (multiple answers possible)

Fishery Cooperative Society

Rural Fisheries Development Society

Local fishers' community organisation or BMU/VFC?

I am not a member of any fishers' association or cooperative

I am a member of an association but my spouse or someone else attends meetings on my behalf

Other (please explain) _____

Q How many boats do you own by yourself?

Q What is the length of your boat, in meters (tick 1 answer).

< 7 m or = 7m

7 – 10 m

10 – 15 m

> 15 m

Q What kind of boat (tick 1 answer)

- ✓ Outrigger canoe
- ✓ Large wooden gillnetters
- ✓ Fiberglass motorized
- ✓ Dhow (with sail)
- ✓ Rig 1 Lead boat with light
- ✓ Dingi boat
- ✓ Rig 2 Lead boat
- ✓ Independent light boat
- ✓ Other (to be specified)

Q is the boat motorized ?

Q if so, how many horse power ?

Q How many boats do you share ownership with other people? (enter number)

_____

Q What are your main target species ?

Q Can you evaluate the % of your total annual catch for each target species (at least between the followings) ?

- small pelagic fish,
- anchovy,
- medium pelagic fish,
- large pelagic fish,
- reef fish
- octopus,
- prawn,
- others

Q How many fishing day trips do you do PER MONTH per boat)?

_____

Q How many months of fishing trips do you do PER YEAR (enter number only).

_____

Q What fishing gear do you use? (multiple answers possible).

- ✓ Purse seine (ring net

- ✓ Longline
- ✓ Gillnets
- ✓ Traps
- ✓ Foot fishers
- ✓ Divers
- ✓ Other (describe) _____

Q Where do you purchase the fishing gears (net, ropes..) ?

Q What is your average catch per trip, in kg?

_____

Q Do you have any by-catch ? What do you do with ?

Q How is your income generated?

- ✓ Catch-share
- ✓ Fixed wage
- ✓ Other (describe) _____

Q Who is paying the operating costs (fuel, maintenance, gears..) of the boat

- ✓ The boat owner not fishing
- ✓ Yourself
- ✓ The Commission agent- trader - agent
- ✓ The Fish processing

Q Who has paid the investment for the boat ?

The boat owner not fishing

Yourself

The Commission agent- trader - agent

The Fish processing

Q Was the boat purchased new or second hand?

Q Where was the boat constructed ?

Q What is the life span of such boat ?

Q How much of maintenance fees per year ?

Q How many fees for boat maintenance ?

Q How many days of work paid to another team ?

Q What was the purchasing price for the boat ?

Q What year the boat was purchased ?

Q Which months is your income from fishing lowest?

Q What do you do during the off season to supplement your income?

Q In the last year, have you or your family received the assistance of the government or organisation during the off season? [Excluding from the boat owner]

Q What type of assistance are you receiving? (describe)

House improvement scheme

Toilet construction scheme

Training

Other (describe) _____

Q Do you receive a payment (advance or loan) from the boat owner during the off season?

Q Do you receive a payment (advance or loan) from the wholesale during the off season?

Q Have you ever had an accident at sea while fishing in the last 10 years?

Q What kind of accident was it?

Q Did you receive any compensation

Q Who did you receive compensation from?

Q Are you currently subscribing to an insurance policy for fishing? How and how much is Yes?

Q How do you feel your quality of life has changed compared to 10 years ago?

Q How do you think the fish stocks are going ?

Q According to you, what are the three most important things that would improve your FISHING ACTIVITY

Budget.

Q What is your gross income from fishing PER YEAR

Q What are your operating costs PER TRIP (enter figure only, in TZS). If more than 1 boat is owned, estimates for one boat.

	TZS per trip (1)
Fuel and oil (volumes and price)	
Drinking water / Food	

Accessories (describe)	
Crew (advance and final payments)	
Extra equipment / back-up	
Ice	
Bait	
Net mending costs	
Net renting	
Engine repair costs	
Other (describe)	

Q What are your ANNUAL fixed costs per boat? (If more than 1 boat is owned, estimate annual costs per boat)

	TZS per year

Licensing permit (year), fishers and boat	
Boat (purchasing price and life span and maintenance)	
Engine (purchasing price and life span and maintenance)	
Value of nets and gear currently in use (purchase price and life span)	
Credit interest and repayments	
Other (describe)	

Q When fish are landed, what percentage goes where? (indicate figure only, as percentage of total catch. Ensure that the sum = 100 to move on to the next question)

- ✓ To a wholesaler : _____
- ✓ To the auction hall : _____
- ✓ To commission agent(s) : _____
- ✓ To agent of export company : _____
- ✓ To processors : _____
- ✓ Other (please specify) (BMU, VFC): _____
- ✓ Don't know : _____
- ✓ Total : _____

Q When you can, do you save money?

Q How do you save money?

Q What are you saving or putting money away for?

Q Have you borrowed money or goods, or taken a loan in the last 2 years? For what reason and was it difficult ?

Q If so, from whom did you borrow, and what is the agreement ?

What is/was the interest rate the …charged?

Q In the past 12 months, have you been refused a loan from a formal financial institution?

For what reasons was the loan refused?

Q Do you currently have any type of account with a commercial bank?

Traders in MLT

ITW 2022 Update VCA4D For Primary or secondary traders (coastal and urban areas)
2021-2022: MLT
Intro.

Q Are you willing to provide details about your revenues and costs from fish-related activities? All information will be confidential.

Traders' characteristics (except middlemen small pelagic) :

- Who are you:
  Male – Female - Age
- Are you independent or working for a processing plant?
- Are you working alone or with employees ? or with your family?
- Where are you based ?
- Are you registered in this district as a seafood agent or trader?
- What is the licensing cost/y if yes?
- Do you keep some fish for you and your family?
- Is trading/selling fish a part-time or full time occupation? What other activities do you do alongside trading/selling?
- Are you also processing fish? Into what?

Incoming

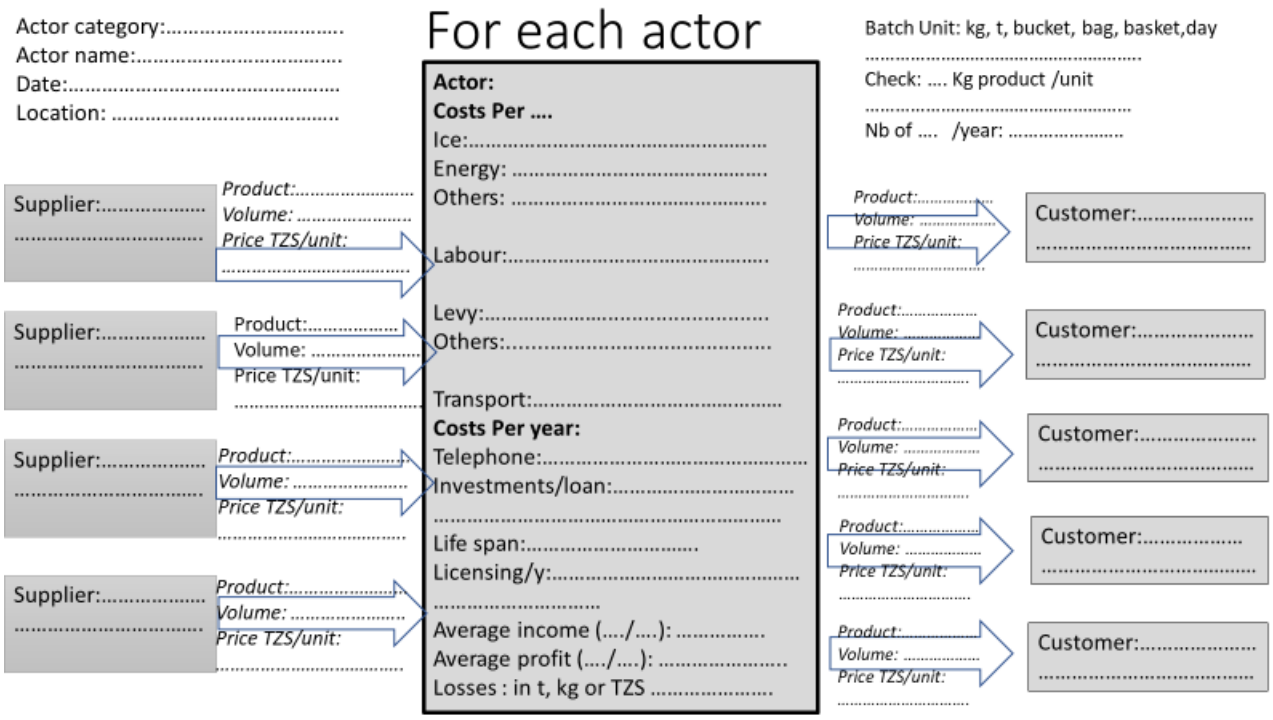
- Which fish or seafood products do you sell?
- Where do you get the fish from?
- Do you buy from other traders, or directly from fishers, or through an auction ?
- Who are your suppliers, fishers? What categories of fishers?
- do you supply fishers with fuel or other accessories?
- how do you calculate the volume? do they ask you ?
- do you buy them fishing gears? how do make the deal ?
- Are you involved in the boat ownership purchase and/or maintenance fees?
- Do you make the quality control? how?
- Have you been trained for this quality control?
- How many fishers or other primary traders do you work with?
- Do you have agreements with them?
- What average amount you buy? per species ? and per day ?
- What average total amount you buy per day (in kg or pieces/species)
- What is the average purchase price per species?
- How do you make the transactions when you buy? (cash, mobile phone transfers?)
- Do you buy different species or sizes from different suppliers? Pls explain
- What taxes do you pay? Licensing ? district ? levy? On what basis?
- Do you pay auctioneers, BMU of VFC? on what basis?

out

- What is the Re-sale price per species?
- Where do you re-sale the fish? Whom to?
- When you process fish, what is the sale price?
- Who are your customers? Why do you process if you process?
- How do you make the transactions when you sell? (cash, mobile phone transfers?)
- Do you sell different species or sizes to different people? Pls explain
- How do you carry the fish?
- Do you own any equipment related to your trade (e.g. truck, bicycle, special baskets….)?
- do you have your own truck? if yes, how do finance it, what is the cost for it ?
- How do you pay the transport?
- What do you do to prevent the fish from spoiling? What equipment do you have to keep the fish cool?
  Freezer? isolated truck? isolated Box? what investment, running costs, what depreciation?
- Do you buy ice? how much per day? what price, and where ?
- do you have storage facilities? if so, describe and give the investments, life span
- what is your main operational costs?
    - transportation fees for you,
    - engine for the fishers
    - ice, cooling?
    - wages (for whom?)
    - space rent?
    - electricity?
    - telephone
    - food,
    - your own transportation, etc . …

- How have you obtained this equipment? (e.g. loan, rent…). Was it difficult, why?
- Are there things that have changed over the last few years that make your work easier or more difficult? (e.g. price increases, 'climate change', overfishing, government/donor support….)
- If you have a mobile phone, do you use it for your work? How/what for? (e.g. find out about prices, money transfers), how much does it cost you per month?
- What do you do with the money earned from the sale of fish?
- Why have you become a fish trader/seller?
- Was it difficult to become a fish trader/seller? Pls explain why if yes or no, what did you have to do?
- Is trading/selling fish a job you enjoy doing? Pls explain why if yes or no.
- What is the biggest issue today for you?

Please can you help in completing this diagram.



Middlemen/women in MLT

VCA4D Tanzania- anchovy middlemen-women (update 2022)

Location – Date - Name

Intro.

Q Are you willing to provide details about your revenues and costs from fishing? All information will be confidential.

The respondent is

a man

a woman

Age? And for how long in the business ? training for or education ?

are you a member of? Local community organisation, member of any fishers' association or cooperative, any others ?

Are you independent or working for a processing plant ?

Are you working alone or with employees ? or with your family ?

Where are you based ?

Are you registered in this district as a seafood agent or trader or processor?

Do you keep some fish that you buy for you and your family?

Is trading/selling/processing fish a part-time or full time occupation? What other activities do you do alongside?

Incoming from the boat

Do you work on several landing site, or just this one?

Do you buy anchovy and/or sardines? can you estimate the % for each and the total volumes purchased? per day (how many days), per month ? per year?

Do you process both species? if not, do you sell fresh? which species?

Where do you get the fish from? What landing sites?

Who are your suppliers, fishers? What king of fishing techniques?

What categories of fishers?

do you supply fishers with engine?

how do you calculate the volume? do they ask you?

do you buy them fishing gears? how do make the deal?

Are you involved in the boat ownership purchase and/or maintenance fees?

Do you make the quality control?

Have you been trained for this quality control?

How many fishers do you work with as an average?

Do you have agreements with them?

What average amount you buy per boat? per species? if in bucket, please specify estimated fresh kg in each bucket

What average total amount you buy per day (in kg or pieces/species or buckets)? Per month? per year?

What is the average purchase price per species?

How do you make the transactions when you buy? (cash, mobile phone transfers?)

Carriers (from the boat to the processing site): - do you have your own carriers? How many?

how do you pay them? Under a contrac?

- do you pay carriers, on what rate? how ?

- how many bucket/carrier/day

- do you buy the buckets for them? at what price/bucket, where ?

- how many buckets for your activity per day you purchase?

- what life span for the bucket?

Boilers

- do you have your own boilers? how many? how do you payt them? under a contract?

- if independent boilers, on what rate do you pay them? how ?

- do you buy the firewood for boiling? how much per batch? what price? where do you get it?

- do you buy the salt, other ingredients? how many, where, what price?

- do you buy the boiling tin? where, how much, life span?

- how many bucket/batch, boiler?

- how many buckets/day for you after boiling?

- what loss due to the boiling?

- what is the % of anchovy that you have boiled and dried, or just dried? what makes your decision?

Dryers

- do you have your own dryers? how many? how do you pay them? under a contract?

- if independent dryers, on what rate do you pay them? how?

- what time for drying at the good season?

- do you buy the plastic sheet? what material (polyethylene?)? what dimension? what price? where do you get them?

- do you buy the final plastic bags?

- how many buckets of dried anchovy per bag?

- loss for drying rate?

- what if, if it is raining?

- do you have built tracks? what is the price for one? what size?

- do you consider drying machine to be an option?

Storage and Packers

- Do you have your own storage space? What was the investment? for how many year? how did you fifance it?

- How long do you store? max? min?

- How do you sieve? who does it? do you pay them?

- What percentage of dust do you get? or how much per batch, as an average, and range (bad-good), what makes the difference?

Transporters before Sales

- your own?

- what rate?

- do you pay engine? what volumes? how man bags/ truck

- transport from where to where

Sales

- do you sell directly to Congolese or through an agent?

- how many people to?

- how do you discuss price? in advance?
- how do you get paid? when?
- do they make a quality control?
- do you also sell fresh? where ?how, how much, what average price?
- do you sell dried anchovy to other people than Congoles? to local retailers?
- how do you sell the dust for chicken feeds? in bags? to an agent, to whom, and how?

Taxes :

- do you pay district taxes?
- licensing?
- space rent? (for drying and storage)
- levy? how much? on what basis?
- Royalties?

Present and futur

- what investments for our activity?
- how did you finance it?
- are you registered?
- For you, what is the main challenge?

Industrial processor in MLT (Economic and environmental part)

ITW 2022 Update VCA4D For Mid-Size multispecific (50-150 t) Processing plant – update 24/03/22

Intro.
Are you willing to provide financial details about your revenues and costs from fish-related activities? All information will be confidential. And many thanks in advance.

Please, for the relevant questions, the amount of seafood (volumes), energies (fuel, electricity), and costs should be given as amount/year

Related to your plant:

-working days/year:- when was it built?

- do you have other plants?

- what is the share holding?

- what is the annual capacity in tons?

- what is the annual turn over?

- what are the seafood products that you process? can you give the % of each category (species) in terms of volume, at least using the 3 categories: octopus, prawn, finfish)?

- do you have exportation of products? what percentage of your turnover and your annual volume does it represent?

- Do you import fresh finfish (how much/year?), fresh prawns (how much/year?) and/or fresh octopus (how much/year)?
- can you give the total annual volumes in tonnes that you purchase for each species?

- What is the average selling price per category?

Finfish	Octopus	Prawns

- how did you finance the plant? what is the interest rate for the credit? For how many years and financial fees?
- where from and how did import the machines, and various equipment? Do you remember the import tax rate for these equipment?

- do you accept to share the investment figures for the plant, or give number of a "typical processing pant" in Tanzania? Cf following table

Plant:

- Freshwater consumption (mc)/year at the plant:
- Electricity consumption (khw or tzs)/year at the plant:
- Fuel (diesel or gasoline?) consumption (L or tzs)/year at the plant (not related to product transport):
- Polyethylene plastic sheets for packaging, amount (kg)/year

- Cardboard boxes used for packaging, amount (kg)/year

	OCTOPUS	**PRAWNS**	**REEF FISH***	**MEDIUM PELAGIC***	**LARGE PELAGIC***
Purchased (ton or kg/year)					
Sold (ton or kg/year)					
Cleaning with freshwater (yes/no)					
Gutting (yes/no) – please specify % weight loss					
Steaking (yes/no) – please specify % weight loss					
Blast freezing (yes/no) or %					
% for export regional					
%hotels					
% local retail shops					
% other (specify)					

Network:

- how many buyers do you work with? are they your employees or independent?
- where are you buying?
- if independent buyers (agents), do you have an agreement with them? are they exclusively working with you? are they commissioned?
- do you provide financial support to the fishers? Ice to the agents?
- Where and to whom are you selling? are the sellers your employees? Or are they independent? if independent, what is the agreement with them? are they exclusively working with you? are they commissioned?
- what are the final customers of your products? can you give us the respective parts of these end users in terms of %.

Transport:

Product transportation from the landing site to the plant:

average distance	mode of transport (es: refrigerated lorry 10-ton capacity)	number of trips/year

,

Product transportation to the final destination:

average distance	mode of transport (es: refrigerated lorry 10-ton capacity)	number of trips/year

- do you have your own trucks or do you pay for a service? If you have you own truck(s), can you give us an estimate of the costs:

- truck capacity,
- truck purchasing price, life span,
- maintenance costs per year,
- imported from where? Import tax?
- how many km/year/truck?
- driver cost (per month or per year)?
- fuel (and oil) cost?
- ice cost?
- other costs (food, insurance., financial fees).

- if you have another plant, how do you invoice transport between your own plants?

Workers
- what is the number of employees,
- what is the share between full time jobs, or part time jobs? who many equivalent full time do you have?
- what is the % of the qualified vs non-qualified jobs,
- what is % of females and males? vs the qualification?
- what is the average monthly salary/employee, qualified and not qualified?

Operational costs for a batch: see table

exercise to be done for each type of product that you introduce: octopus, prawns, finfish (and types of finfish) if possible.
Or to divide per fixed costs and variable costs (depending on the species).
Related to a batch, analytical counts. Could you help us in getting operational costs for your plant or for "**a typical seafood processing plant**" in Tanzania? representing the average case?

Ice making machine – or independent ice maker company
- what is the purchasing price? for what capacity, flakes or blocks?
- What operational costs (electricity, water, maintenance)?
- How do you calculate the needs per batch of seafood?
- do you sell the ice? to whom?

Shipping for export:
- do you have your own agent or do you work with another exporting company?
- where do you export, which products?
- what royalty rate? Per species?
- what shipping cost per kg or per t? air fret or truck?

Your wish or comment on the present situation

Questionnaires used in ZNZ (shared with Env. Expert)

Primary Traders

1. Questionnaire for primary traders/agents at the landing sites/coastal small markets (A. Martini and R. Le Gouvello, VCA4D, update April 5, 2022)

PLEASE, PRINT 4 COPIES: 2 FOR TWO TRADERS AND 2 FOR TWO AGENTS

Where:
Date:
Name of respondent: ☐ male ☐ female
Name of questionnaire handler:

Thank you for your participation. All the information will be confidential.

- Are you: ☐ Trader (independent buyer and seller – **not for hotel**) ☐ Agent (buyer **for hotel-restaurant**)
- Do you rent or own a ☐ bike, ☐ car (pick-up), or ☐ motorcycle? ☐ no
- How many days per year do you work as a trader/agent?

Conversion units: TO BE DONE WITH A BEACH RECORDER

1 bucket or basket= _____ kg

1 piece=_____kg

1 mtungo= _____kg

Purchasing:

Amount of seafood **bought per** ☐**year**/ ☐ **day** – please fill the table below:

Group	Amount ☐ton/year ☐Kg/day	Purchasing price (TSH/kg)	From:
Small pelagic			☐at auction, ☐ fishers*,
Reef fish			☐at auction, ☐fishers*,
Octopus			☐at auction, ☐fishers*,
Large pelagic (tuna and tuna-like)			☐at auction, ☐fishers*,

Fishers*: purchasing directly from fishers, no auction

Selling:

Amount of seafood **sold per** ☐**year**/ ☐ **day** – please fill the table below:

Group	Amount ☐ton/year ☐Kg/day	Selling price (TZS/kg)	Product	To whom
Small pelagic			☐fresh, ☐frozen, ☐ cut	☐frier , ☐trader, ☐ retailer, ☐ restaurant/hotel
Reef fish			☐fresh, ☐frozen, ☐ cut	☐ frier , ☐trader, ☐ retailer, ☐ restaurant/hotel
Octopus			☐fresh, ☐frozen, ☐ cut	☐ frier, ☐trader, ☐ retailer, ☐ restaurant/hotel

Large pelagic (tuna and tuna-like)			☐fresh, ☐frozen, ☐ cut	☐ frier, ☐trader, ☐ retailer, ☐ restaurant/hotel

Ice:

- Amount of ice used per kg seafood:
- Price of ice (TZS)/kg:
- where is the ice purchased, from whom:

Electricity:

- Consumption (kwh or TZS) per year (or day + number working days/year):
- Price electricity (TSZ/kwh)

Transportation:

- Paid as a service or on your own:
- Destination and average distance (km):
- Mode (car, small truck + capacity, boat):
- Average amount of product transported per trip (kg or ton):
- Cost (TZS/kg):

Packaging:

- Type of packaging (e.g. insulated box, cardboards) -amount (kg)/year or day:
- Use of plastics-amount (kg)/year or day:
- Packaging costs (quantification per kg product or tot per year):
- Packaging volume (quantification per kg product or tot per year):

Other Services:

- costs for carriers/porters:
- costs for other (cleaners/degutters)?

Fixed and other costs:

- VFC costs? ☐ Yes ☐ No How much (tzs/year):
- Levy cost (TSH/kg):
- Annual licensing cost (TZS):
- Capital investment:
- What investment?
- How much?
- How long (for instance, lifespan of insulated box, or domestic freezer...):
- How did you finance it?
- Telephone costs (☐smartphone or ☐regular phone or ☐nothing?): price of the device_____TZS + monthly cost for calls _____ TZS

Small processors

2. Questionnaire for FRIERS at the markets, and/or in the streets

(A. Martini and R. Le Gouvello, VCA4D, update April 5, 2022)

PLEASE, PRINT 2 COPIES OF THIS DOCUMENT
(= 2 QUESTIONNAIRES FOR TYPE OF ACTOR)

Where:
Date:
Name of respondent: ☐ male ☐ female
Name of questionnaire handler:

you for your participation. All information will be confidential.

How many days/year do you perform this job?

Conversion units:

1 bucket or basket= _____ kg

1 piece=_____kg

1 mtungo= _____kg

- Are you paid for this service? ☐**Yes**/ ☐ **No**

- if you are paid for this service, who is asking you ? Please fill the first table

- if you are paid, how much are you paid for this service?

- is this your sole job? ☐**Yes**/ ☐ **No**

- if you purchase, please fill out these tables.

Purchasing:

Amount of seafood **bought/processed per** ☐**year**/ ☐ **day** – please fill the table below:

Group	Amount ☐ton/year ☐Kg/day	Purchasing price (TSH/kg)	From:
Small pelagic			☐auction, ☐fishers, ☐ trader
Reef fish			☐auction, ☐fishers, ☐ trader
Octopus			☐auction, ☐fishers ☐ trader
Large pelagic (tuna and tuna-like)			☐auction, ☐fishers, ☐ trader

Selling:

Amount of seafood **sold per** ☐**year**/ ☐ **day** – please fill the table below:

Group	Amount ☐ton/year ☐Kg/day	Selling price (TZS/kg)	To whom
Small pelagic			☐community customer, ☐trader, ☐ retailer, ☐ restaurant/hotel

Reef fish			☐ community customer, ☐ trader, ☐ retailer, ☐ restaurant/hotel
Octopus			☐ community customer, ☐ trader, ☐ retailer, ☐ restaurant/hotel
Large pelagic (tuna and tuna-like)			☐ community customer, ☐ trader, ☐ retailer, ☐ restaurant/hotel

Product yield post-frying

Group	Amount (kg) (weight BEFORE the processing)	Amount (kg) (weight AFTER the processing)	YIELD (%) (if known)
Small pelagic			
Reef fish			
Octopus			
Large pelagic (tuna and tuna-like)			

Yield: Amount of sold product/amount of product introduced into processing x 100)

The material and costs used for frying

Frying: the amount and costs of firewood, gas, oil or fat, other material (or equipment specify the lifespan) per year OR per a certain amount of seafood (e.g., 10 kg firewood and 3 kg oil per day **if we know** that the person processes 10 kg of seafood per day…)

Item	Amount (kg)	Price/Costs
Firewood per year (if possible, n bundles + weight of a bundle, regardless the type of wood)*		
Gas per year (in kg or n cylinders + kg/cylinder)		
Oil or fat (specify) kg/year		
Charcoal per year (kg)		
Other woody resources… (kg)		
…		
…		

WHAT IS THE ORGIN OF THE WOOD USED? ☐ Zanzibar, ☐ Mainland, ☐ other country
WHICH ARE THE MOST COMMON TYPES OF WOOD? ☐ **MANGO,** ☐ **COCONUT,** ☐ OTHERS (specify)_____**Other costs:**

- Costs for carriers/porters/cleaners:
- Cost of truckers (dalala):
- Stall rent or space rent?
- Annual licensing cost (TZS):
- Telephone costs (☐ smartphone or ☐ regular phone or ☐ nothing?): price of the device_____TZS + monthly cost for calls _____ TZS
- Capital investment:
- What investment?
- How much?

- How long (for instance, lifespan of an insulated box, or domestic freezer...):
- How did you finance it?

2. Questionnaire for CHILLER at the markets, and/or in the streets

(A. Martini and R. Le Gouvello, VCA4D, updateApril 5, 2022)

Where:
Date:
Name of respondent: ☐ male ☐ female
Name of questionnaire handler:

Thank you for your participation. All information will be confidential.

How many days/year do you perform this job?

Conversion units:

1 bucket or basket= _____ kg

1 piece=_____kg

1 mtungo= _____kg

- Are you paid for this service? ☐ **Yes/** ☐ **No**

- if you are paid for this service, who is asking you ? Please fill the first table

- if you are paid, how much are you paid for this service?

- is this your sole job ? ☐ **Yes/** ☐ **No**

- if you purchase, please fill out these tables.

Purchasing:

Amount of seafood **bought/processed per** ☐ **year/** ☐ **day** – please fill the table below:

Group	Amount ☐ton/year ☐Kg/day	Purchasing price (TSH/kg)	From:
Small pelagic			☐auction, ☐fishers*, ☐ trader
Reef fish			☐auction, ☐fishers*, ☐ trader
Octopus			☐auction, ☐fishers*, ☐ trader
Large pelagic (tuna and tuna-like)			☐auction, ☐fishers*, ☐ trader

Selling:

Amount of seafood **sold per** ☐ **year/** ☐ **day** – please fill the table below:

Group	Amount ☐ton/year ☐Kg/day	Selling price (TZS/kg)	To whom
Small pelagic			☐community customer, ☐trader, ☐ retailer, ☐ restaurant/hotel
Reef fish			☐ community customer, ☐trader, ☐ retailer, ☐ restaurant/hotel

Octopus			☐ community customer, ☐trader, ☐ retailer, ☐ restaurant/hotel
Large pelagic (tuna and tuna-like)			☐ community customer, ☐trader, ☐ retailer, ☐ restaurant/hotel

Product yield post-chilling

Group	Amount (kg) (weight BEFORE the processing)	Amount (kg) (weight AFTER the processing)	YIELD (%) (if known)
Small pelagic			
Reef fish			
Octopus			
Large pelagic (tuna and tuna-like)			

Yield: Amount of sold product/amount of product introduced into processing x 100)

The material and costs used for chilling

Chilling/freezing: the amount of ice used to chill per year OR per a certain amount of product, use of insulated boxes and their lifespan, electricity consumption per year (or day or month + number working days/year)

Item	Amount (kg/kwh) per kg of product processed	Price/Costs
Ice		
Insulated boxes		
Electricity		
Freezer/fridges (number of item+lifespan)		
…		
…		
…		

Other costs:

- Cost for carriers/porters:
- Cost of truckers (dalala):
- Stall rent or space rent?
- VFC costs? ☐Yes ☐No How much:
- Levy cost (TSH/kg):
- Annual licensing cost (TZS):
- Telephone costs (☐smartphone or ☐regular phone or ☐nothing?): price of the device_____TZS + monthly cost for calls _____ TZS
- Capital investment:
- What investment?
- How much?
- How long (for instance, lifespan of an insulated box, or domestic freezer...):
- How did you finance it?

2. Questionnaire for DRIER at the markets, and/or in the streets

(A. Martini and R. Le Gouvello, VCA4D, updateApril 5, 2022)

Where:
Date:
Name of respondent: ☐ male ☐ female
Name of questionnaire handler:

Thank you for your participation. All information will be confidential.

How many days/year do you perform this job?

Conversion units:

1 bucket or basket= _____ kg

1 piece=_____kg

1 mtungo= _____kg

- Are you paid for this service? ☐**Yes**/ ☐ **No**

- if you are paid for this service, who is asking you ? Please fill the first table

- if you are paid, how much are you paid for this service?

- is this your sole job ? ☐**Yes**/ ☐ **No**

- if you purchase, please fill out these tables.

Purchasing:

Amount of seafood **bought/processed per** ☐**year**/ ☐ **day** – please fill the table below:

Group	Amount ☐ton/year ☐Kg/day	Purchasing price (TSH/kg)	From:
Small pelagic for local community			☐auction, ☐fishers*, ☐ trader
Reef fish			☐auction, ☐fishers*, ☐ trader
Octopus			☐auction, ☐fishers*, ☐ trader
Large pelagic (tuna and tuna-like)			☐auction, ☐fishers*, ☐ trader

Selling:

Amount of seafood **sold per** ☐**year**/ ☐ **day** – please fill the table below:

Group	Amount ☐ton/year ☐Kg/day	Selling price (TZS/kg)	To whom
Small pelagic **for local community**			☐community customer, ☐trader, ☐ retailer, ☐ restaurant/hotel

Reef fish			☐ community customer, ☐ trader, ☐ retailer, ☐ restaurant/hotel
Octopus			☐ community customer, ☐ trader, ☐ retailer, ☐ restaurant/hotel
Large pelagic (tuna and tuna-like)			

Product yield post-drying

Group	Amount (kg) (weight BEFORE the processing)	Amount (kg) (weight AFTER the processing)	YIELD (%) (if known)
Small pelagic			
Reef fish			
Octopus			
Large pelagic (tuna and tuna-like)			

Yield: Amount of sold product/amount of product introduced into processing x 100)

The material and costs used for drying

Drying: (if sun-drying, where and how, tracks, tarpaulin…)

Item	Amount per kg of product processed or	Price/Costs
Tarpaulin		
Polypropylene bags		
Salt		
…		
…		
…		
…		

Other costs:

- Coast of carriers/porters:
- Number of truckers:
- Stall rent or space rent?
- VFC costs? ☐ Yes ☐ No How much:
- Levy cost (TSH/kg):
- Annual licensing cost (TZS):
- Telephone costs (☐ smartphone or ☐ regular phone or ☐ nothing?): price of the device_____TZS + monthly cost for calls _____ TZS
- Capital investment:
- What investment?
- How much?

- How long (for instance, lifespan of an insulated box, or domestic freezer...):
- How did you finance it?

2. Questionnaire for DE-GUTTING/SCALE REMOVAL at the markets, and/or in the streets

(A. Martini and R. Le Gouvello, VCA4D, updateApril 5, 2022)

Where:
Date:
Name of respondent: ☐ male ☐ female
Name of questionnaire handler:

Thank you for your participation. All information will be confidential.

How many days/year do you perform this job?

Conversion units:

1 bucket or basket= _____ kg

1 piece=_____kg

1 mtungo= _____kg

- Are you paid for this service? ☐**Yes**/ ☐ **No**

- if you are paid for this service, who is asking you ? Please fill the first table

- if you are paid, how much are you paid for this service?

- is this your sole job ? ☐**Yes**/ ☐ **No**

- if you purchase, please fill out these tables.

Purchasing:

Amount of product **bought/processed per** ☐**year**/ ☐ **day** – please fill the table below:

Group	Amount ☐ton/year ☐Kg/day	Purchasing price (TSH/kg)	From:
Small pelagic for local community			☐auction, ☐fishers, ☐ trader
Reef fish			☐auction, ☐fishers, ☐ trader
Octopus			☐auction, ☐fishers, ☐ trader
Large pelagic (tuna and tuna-like)			☐auction, ☐fishers ☐ trader

Selling:

Amount of product **sold per** ☐**year**/ ☐ **day** – please fill the table below:

Group	Amount ☐ton/year ☐Kg/day	Selling price (TZS/kg)	To whom
Small pelagic for local community			☐community customer, ☐trader, ☐ retailer, ☐ restaurant/hotel
Reef fish			☐ community customer, ☐trader, ☐ retailer, ☐ restaurant/hotel
Octopus			☐ community customer, ☐trader, ☐ retailer, ☐ restaurant/hotel
Large pelagic (tuna and tuna-like)			☐ community customer, ☐trader, ☐ retailer, ☐ restaurant/hotel

De-gutting, de-scaling process

- are you removing the heads?

- are you removing scales?

- are you removing the viscera:

- what do you do with the parts removed? ☐ waste ☐ used for animal feed ☐ used for human consumption

Yield: Amount of sold product/amount of product introduced into processing x 100)

The material and costs used for DEGUTTING

Item	Amount per kg of product processed Or number of item per year	Price/Costs
knife		
Specific clothes		
Gloves		
…		
…		
…		
…		

Other costs:

- Coast of carriers/porters:
- Number of truckers:
- Stall rent or space rent?
- VFC costs? ☐Yes ☐No How much:
- Levy cost (TSH/kg):
- Annual licensing cost (TZS):

- Telephone costs (☐smartphone or ☐regular phone or ☐nothing?): price of the device_____TZS + monthly cost for calls _____ TZS
- Capital investment:
- What investment?
- How much?
- How long (for instance, lifespan of an insulated box, or domestic freezer...):
- How did you finance it?

APPENDIX ECONOMIC GROWTH SECTION 3.2

Section 3.2.1 Operational costs/ profitability per actor

Ref for fuel price:

https://www.ewura.go.tz/wp-content/uploads/2021/03/Annual-Report-for-the-Year-ended-3oth-June-2020.pdf

Section 3.2.1.1 Fishers in MLT

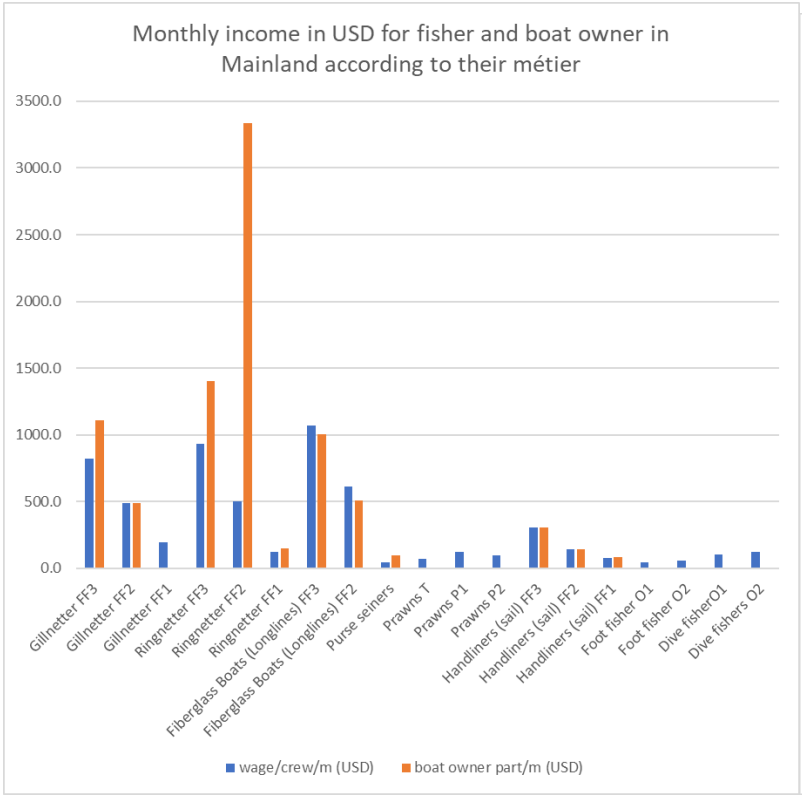
→ excel file Operating cost

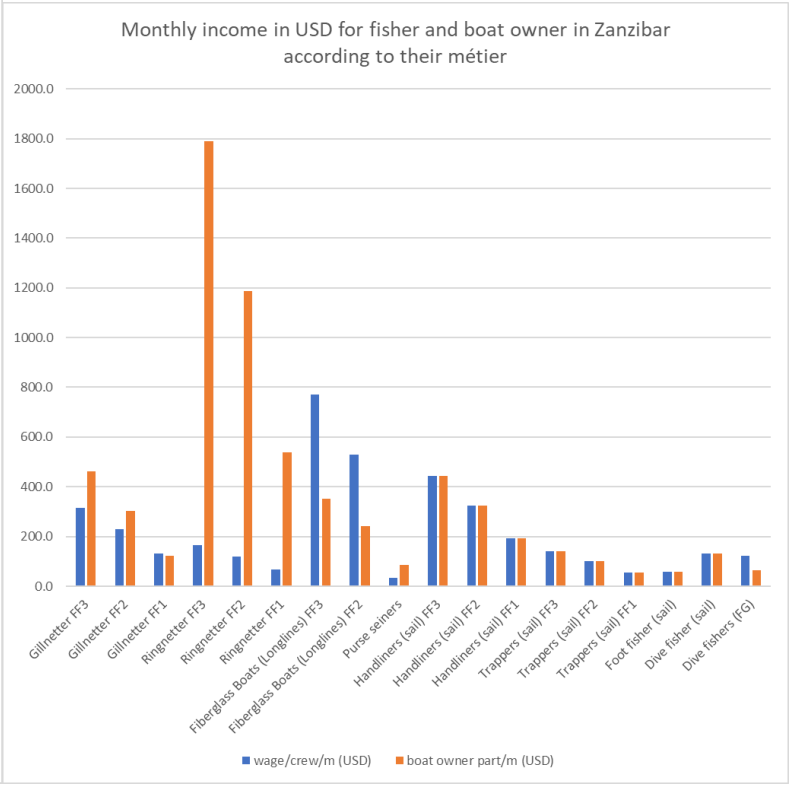
Mainland 16/06/22 onwards																			
				FF3	FF2	FF1	FF3	FF2		Trawlers	P1	P2	FF3	FF2	FF1				
Variables	**Gillnetter F**	**Gillnetter F**	**Gillnetter F**	**Ringnetter**	**Ringnetter**	**Ringnetter**	**Fiberglass Bo**	**Fiberglass Bo**	**Purse seiner**	**Prawns T**	**Prawns P1**	**Prawns P2**	**Handliners (H**	**Handliners (M**	**Handliners (L**	**Foot fisher O1**	**Foot fisher O2**	**Dive fisherO1**	**Dive fishers**
trip length (d)	3.0	3.0	3.0	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Catch per trip (kg)	643.5	643.5	643.5	1000.00	1000.00	1000.00	135.00	135.00	555.00	555.00	48.50	48.50	26.70	26.70	26.70	3.00	3.00	4.75	4.75
trip/year	60.0	60.0	60.0	288.00	288.00	288.00	3.00	3.00	180.00	100.00	82.00	82.00	210.00	210.00	210.00	150.00	150.00	220.00	220.00
target	**Finfish H**	**Finfish M**	**Finfish L**	**Finfish H**	**Finfish M**	**Finfish L**	**Finfish H**	**Finfish M**	**Anchovy**	**Anchovy**	**Prawns**	**Prawns**	**Finfish H**	**Finfish M**	**Finfish L**	**Octopus FO1**	**Octopus FO2**	**Octopus DO1**	**Octopus D02**
Estimated number of units	65	**111**	**37**	17	**18**	33	**30**	**61**	150	3	**383**	**188**	625	714	**491**	2809	1913	1109	755
tonnage (t/y)	54.0	54.0	54.0	300.00	300.00	300.00	33.20	33.20	100.00	5.40	4.00	4.00	5.60	5.60	5.60	0.45	0.45	1.14	1.14
Crew number	6.0	6.0	6.0	30.00	30.00	30.00	3.00	3.00	16.00	28.00	3.00	3.00	2.00	2.00	2.00	**1.00**	**1.00**	**1.00**	1.00
average price TZS/kg	**4500.0**	**2857**	**1429.0**	**4500.00**	**2857.00**	**1429.00**	**4500.00**	**2857.00**	**880.00**	**13800.00**	**2500.00**	**4500.00**	**4500.00**	**2857.00**	**1429.00**	**3500.00**	**4000.00**	**3500.00**	**4000.00**
Sales (MTZS/y)	**243.2**	**154.4**	**77.2**	**1350.00**	**857.10**	**428.70**	**149.40**	**94.90**	**87.90**		**10.00**	**18.00**	**25.20**	**16.00**	**8.00**	**1.58**	**1.80**	**4.00**	**4.56**
Costs (MTZS/y)																			
auction fees	**7.3**	**4.6**	**2.3**	**27.00**	**17.14**	**8.57**	**4.50**	**2.84**					**0.76**	**0.48**	**0.24**				
other landing fees or tax	2.4	1.5	0.8	**13.50**	8.50	4.29	1.50	0.95		1.62	0.00	4.92	0.25	0.16	0.08	0.25	0.25	0.25	0.25
fuel cost	**22.4**	**22.4**	**22.4**	**198.66**	**198.66**	**198.66**	**13.10**	**13.10**	**39.60**	13.40							**0.225 (transport)**		**0.57**
bait cost		0.0	0.0		0.00	0.00	6.15	6.15			1.50	1.50	2.10	2.10	2.10				
engine maintenance		0.0	0.0	8.64	8.64	8.64		0.00											
boat maintenance+accessories	27.2	14.4	3.3	72.00	72.00	72.00		0.00	9.00	5.94	0.00	5.10	1.05	1.05	1.05	0.04	0.04	0.10	0.10
crew before trip	18.0	18.0	18.0	0.00	0.00	0.00	1.50	1.50											
Profit to be shared (MTZS/y)	**181.0**	**95.9**	**22.0**	**1030.20**	**552.10**	**136.54**	**122.80**	**122.80**	**39.31**				**21.04**	**8.00**	**4.43**				
maintenance after share									**6.45**				**4.20**	**4.20**	**0.10**				
wage total	**117.7**	**62.3**	**14.2**	**772.65**	**414.00**	**102.44**	**88.40**	**50.70**	**19.56**	**4.05**	**9.92**	**7.90**							
boat licensing	0.0	0.0	0.0	0.12	0.12	0.12	0.05	0.05		0.00			0.03	0.03	0.03				
fisher licensing	0.2	0.2	0.2	0.75	0.75	0.75	0.09	0.09	0.65	0.65	0.08	0.08	0.06	0.06	0.06	0.03	0.03	0.03	0.03
engine depreciation	0.5	0.5	0.5	1.28	1.28	1.28	0.90	0.90	0.63	Unknown									
boat depreciation	0.5	0.5	0.5	1.60	1.60	1.60	0.70	0.70	0.70	Unknown	1.50	1.50	0.03	0.03	0.03				
gear depreciation	4.0	4.0	4.0	21.00	21.00	21.00	0.20	0.20	1.46	Unknown									
wage/crew/y (MTZS)	**22.6**	**13.4**	**5.4**	**25.76**	**13.80**	**3.41**	**29.50**	**16.90**	**1.23**	**0.15**	**3.20**	**2.55**	**8.36**	**3.96**	**2.20**	**1.28**	**1.51**	**2.89**	**3.39**
wage/crew/m (USD)	**819.7**	**485.0**	**194.0**	**933.00**	**500.10**	**123.70**	**1067.60**	**612.00**	**44.50**	**66.40**	**119.00**	**95.00**	**304.00**	**143.50**	**78.00**	**46.48**	**54.60**	**104.60**	**122.72**
skipper income (MTZS/y)				**194.00**	**92.00**	**4.00**	**3.68**	**2.11**	**4.90**	**unknown**							**0.14**		**0.14**
skipper income (USD/m)				**1400.00**	**750.00**	**185.00**	**133.50**	**76.50**	**177.54**								**60.87**		**60.87**
Lamp holder (USD/m)									**2.95**										
Lamp holder (MTZS/y)									**106.88**										
boat onwer part (MTZS/y)	**30.5**	**13.5**	**0.0**	**38.63**	**92.00**	**4.00**	**27.70**	**14.00**	**2.60**	**unknown**			**8.36**	**3.96**	**2.20**				
boat owner part/m (USD)	**1105.1**	**489.1**	**0.0**	**1399.64**	**3333.33**	**144.93**	**1003.62**	**507.25**	**94.20**				**302.99**	**143.48**	**79.71**				
total IGS costs (MTZS/y)	**59.3**	**42.9**	**28.7**	**319.80**	**304.94**	**292.16**	**25.25**	**23.04**	**55.05**	**20.96**			**8.36**	**7.99**	**3.57**				
% fuel costs/IGS	**37.7**	**52.1**	**77.9**	**62.12**	**65.15**	**68.00**	**51.88**	**56.86**	**71.94**	**63.93**			**0.00**	**0.00**	**0.00**				
% Boat owner/sales	**12.5**	**8.7**	**0.0**	**2.86**	**10.73**	**0.93**	**18.54**	**14.75**	**2.96**		**0.00**	**0.00**	**33.18**	**24.75**	**27.50**	**81.71**	**71.50**	**77.43**	**69.75**
sources	primary data	primary data	primary data	primary data	primary data	primary data	primary data	primary data	primary data	Sofreco,2018	primary data	primary data	primary data	primary data	primary data	primary data	primary data	primary data	primary data
																sofreco 2018	sofreco 2019	sofreco 2020	sofreco 2021
check	818.8	485.5	194.2	933.2	500.0	123.6	1068.8	612.3	44.6	5.4	115.9	92.4	303.0	143.5	79.7	46.4		104.7	122.8
number of fishers	390	666	222	510	540	990	90	183	2400	84	1149	564	1250	1428	982	2809	1913	1109	755
AFA Output																3.5	4	3.5	4
AFA NOP																2.86	2.86	2.71	2.79
AFA Boat owner																0			
Retunr on turnover																81.7	71.5	77.4	69.8

Section 3.2.1.1 Fishers in ZNZ

					FF3	FF2	FF1	FF3	FF2	FF3	FF2	FF1	FF3	FF2	FF1			
	Variables	**Gillnetter H**	**Gillnetter M**	**Gillnetter L**	**Ringnetter**	**Ringnetter**	**Ringnetter**	**Fiberglass Bo**	**Fiberglass Bo**	**Handliners (**	**Handliners (s**	**Handliners (s**	**Trappers (sa**	**Trappers (sa**	**Trappers (sa**	**Foot fisher (s**	**Dive fisher (sail)**	**Dive fishers**	**Purse seiners**
	trip length (d)	1.0	1.0	1.0	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	Catch per trip (kg)	22.5	22.5	22.5	135.00	135.00	135.00	2.00	2.00	35.89	35.89	35.89	10.00	10.00	10.00	7.00	14.00	35.00	485.00
	trip/year	180.0	180.0	180.0	288.00	288.00	288.00	3.00	3.00	156.00	156.00	156.00	300.00	300.00	300.00	220.00	220.00	220.00	180.00
	target	**Finfish H**	**Finfish M**	**Finfish L**	**Finfish H**	**Finfish M**	**Finfish L**	**Finfish H**	**Finfish M**	**Finfish H**	**Finfish M**	**Finfish L**	**Finfish H**	**Finfish M**	**Finfish L**	**Octopus F**	**Octopus DS**	**Octopus DM**	**Anchovy**
	Estimated number of units	200	**200**	**142**	77	**77**	54	**142**	**142**	446	446	**262**	**733**	**733**	488	187	187	75	416
	tonnage (t/y)	15.0	15.0	15.0	38.88	38.88	38.88	12.00	12.00	5.60	5.60	5.60	3.00	3.00	3.00	1.54	3.08	7.70	87.30
	Crew number	6.0	6.0	6.0	30.00	30.00	30.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	**3.00**	**3.00**	3.00	16.00
	average price TZS/kg	**6000.0**	**4500.0**	**2857.0**	**6000.00**	**4500.00**	**2857.00**	**6000.00**	**4500.00**	**6000.00**	**4500.00**	**2857.00**	**6000.00**	**4500.00**	**2857.00**	**5000.00**	**5000.00**	**5000.00**	**615.00**
	Sales (MTZS/y)	**90.0**	**67.5**	**42.9**	**233.28**	**174.96**	**111.08**	**72.00**	**54.00**	**33.60**	**25.20**	**15.99**	**18.00**	**13.50**	**8.57**	**7.70**	**15.40**	**34.65**	**53.69**
	Costs (MTZS/y)																		
	auction fees	**0.9**	**0.7**	**0.4**	**2.33**	**1.75**	**1.11**	**0.72**	**0.54**	**0.34**	**0.25**	**0.16**	**0.18**	**0.14**	0.09	0.08	0.15	**0.39**	
	other landing fees or tax	0.0	0.0	0.0	**0.00**	0.00	0.00												
	fuel cost	**5.9**	**5.9**	**5.9**	**25.34**	**25.34**	**25.34**	**10.56**	**10.56**									**24.20**	**15.84**
	bait cost	0.0	0.0	0.0		0.00	0.00	3.00	3.00	1.56	1.56	1.56	1.50	1.50	1.50				
	engine maintenance	0.2	0.2	0.2		0.00	0.00	1.00	1.00		0.00	0.00						1.00	0.25
	boat maintenance+accessories	2.4	2.4	2.4	0.30	0.30	0.30	1.28	1.28	0.78	0.78	0.78	0.60	0.60	0.60	1.37	1.37	0.28	9.00
	crew before trip	0.0	0.0	0.0	0.00	0.00	0.00				0.00	0.00							
	Profit to be shared (MTZS/y)	**80.5**	**58.2**	**33.8**	**205.30**	**147.57**	**84.32**	**56.72**	**38.90**	**30.92**	**22.61**	**13.50**	**15.57**	**11.12**	**6.24**	**6.25**	**13.88**	**13.65**	**28.85**
	maintenance after share	**12.1**	**8.7**	**5.1**						**6.18**	**4.52**	**2.70**				**1.25**	**2.77**		**2.40**
	wage total	**52.3**	**37.9**	**22.0**	**136.87**	**98.38**	**56.21**	**42.54**	**29.17**	**24.74**	**18.08**	**10.80**	**7.79**	**5.55**	**3.12**		11.10	**10.23**	**14.42**
	boat licensing	0.0	0.0	0.0	0.12	0.12	0.12	0.05	0.05	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.05	
	fisher licensing	0.2	0.2	0.2	0.75	0.75	0.75	0.06	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.09	0.09	0.09	0.65
	engine depreciation	0.9	0.9	0.9	0.53	0.53	0.53	0.90	0.90		0.00	0.00					0.00	0.90	0.63
	boat depreciation	0.9	0.9	0.9	0.75	0.75	0.75	0.70	0.70	0.04	0.04	0.04	0.13	0.13	0.13	0.04	0.04	0.70	0.70
	gear depreciation	1.4	1.4	1.4	0.75	0.75	0.75				0.00	0.00							1.46
	wage/crew/y (MTZS)	**8.7**	**6.3**	**3.7**	**4.56**	**3.28**	**1.87**	**21.27**	**14.58**	**12.27**	**8.94**	**5.30**	**3.89**	**2.78**	1.56	**1.61**	**3.62**	**3.41**	**0.90**
	wage/crew/m (USD)	**316.1**	**228.6**	**132.9**	**165.30**	**118.81**	**67.89**	**770.65**	**528.54**	**444.48**	**324.00**	**192.00**	**141.00**	**100.70**	56.48	**58.39**	**131.30**	**123.00**	**32.66**
	skipper income (MTZS/y)				**10.27**	**7.38**	**4.21**												**3.61**
	skipper income (USD/m)				**372.00**	**267.33**	**152.76**												**130.65**
	Lamp holder (USD/m)																		**2.16**
	Lamp holder (MTZS/y)																		**78.26**
	boat onwer part (MTZS/y)	**12.8**	**8.4**	**3.4**	**49.40**	**32.75**	**14.85**	**9.75**	**6.70**	**12.26**	**8.94**	**5.29**	**3.89**	**2.78**	**1.56**	**1.61**	**3.62**	**1.81**	**2.40**
	boat owner part/m (USD)	**462.7**	**302.5**	**122.8**	**1789.86**	**1186.59**	**538.04**	**353.26**	**242.75**	**444.20**	**323.91**	**191.67**	**140.94**	**100.72**	**56.48**	**58.33**	**131.16**	**65.58**	**86.96**
	total IGS costs (MTZS/y)	**21.6**	**18.0**	**14.1**	**27.97**	**27.39**	**26.76**	**16.56**	**16.38**	**8.86**	**7.11**	**5.20**	**2.28**	**2.24**	**2.19**	**2.70**	**4.29**	**25.87**	**27.49**
	% fuel costs/IGS	**27.6**	**33.0**	**42.2**	**90.60**	**92.52**	**94.73**	**63.77**	**64.47**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**93.56**	**57.62**
	% Boat owner/sales	**14.2**	**12.4**	**7.9**	**21.18**	**18.72**	**13.37**	**13.54**	**12.41**	**36.49**	**35.48**	**33.08**	**21.61**	**20.59**	**18.19**	**20.91**	**23.51**	**5.22**	**4.47**
	sources	primary data	primary data	primary data	primary data	primary data	primary data	primary data	primary data	primary data	primary data	primary data	primary data	primary data	primary data	primary data	primary data	primary data	primary data

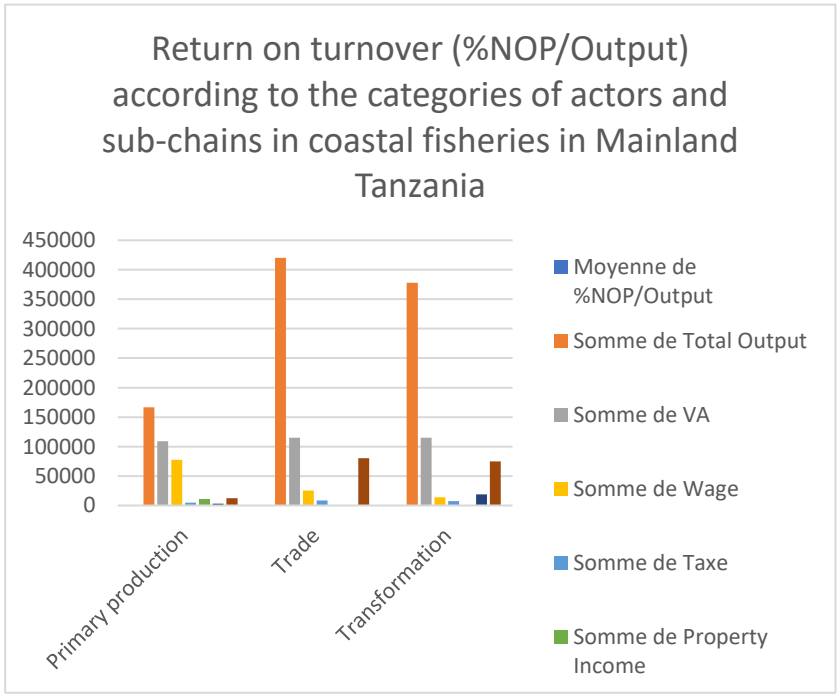
Section 3.2.1.1 Fishers / Boat owners income/métier-category/region

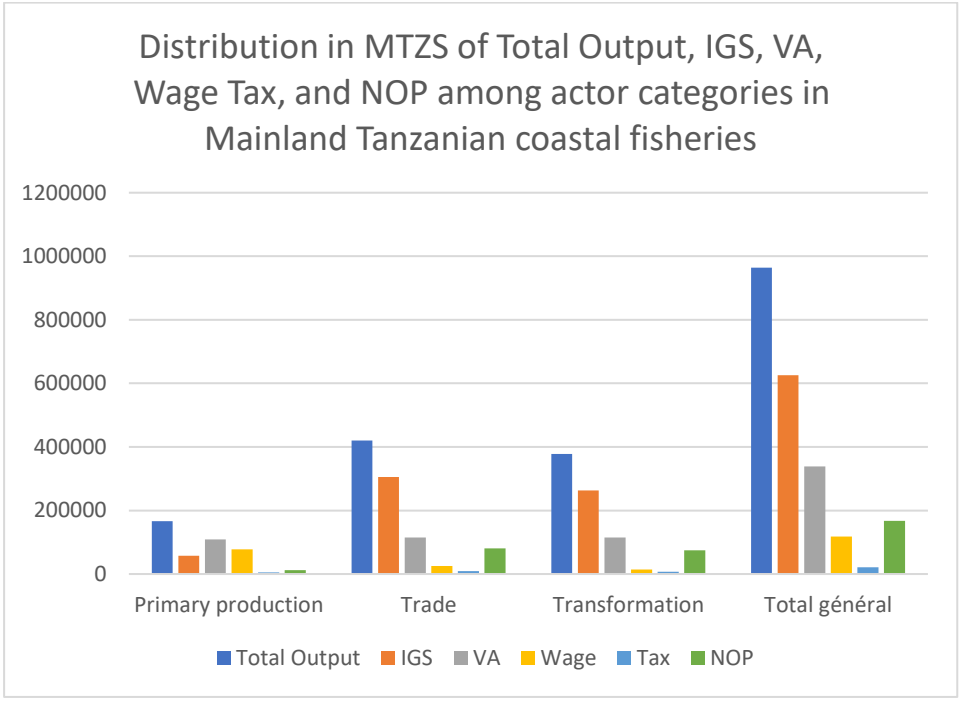




Section 3.2.1.2 Traders/processors in MLT

MLT	27/06/2022																	
Subchain	Operation	Total Output	IGS	VA	Wage	Taxe	Property Incom	Depreciation	Op Number	NOPcorr	nbFTE/land	nb FTE/NOP	nb FTE/wage	tot FTE	Income (MTZS/m	Month income i	%NOP/Output	
anchovy	Primary production	13200	8167	5033	4118	97	390	415	150	12	108	3	1144	1256	0	62	0	
anchovy	Trade	58455	32987	25468	13038	820	0	0	2922	11610	0	3225	3622	6847	0	144	20	
anchovy	Transformation	20286	10076	10211	4986	64	0	135	549	5026	0	1396	1385	2781	1	332	25	
FF1	Primary production	21078	12789	8289	6883	280	133	995	561	-2	444	-1	1912	2356	0	113	0	
FF1	Trade	56805	42149	14656	2477	2259	0	72	981	9848	0	2736	688	3424	1	364	17	
FF1	Transformation	91773	52403	39369	1423	1304	0	2623	1831	34020	0	9450	395	9845	2	673	37	
FF2	Primary production	50232	18612	31620	25782	616	4035	1087	907	101	1121	28	7162	8310	1	321	0	
FF2	Trade	136027	101916	34110	5956	2255	0	63	1349	25837	0	7177	1654	8831	2	694	19	
FF2	Transformation	89022	71932	17090	2312	1123	0	4300	1458	9355	0	2599	642	3241	1	233	11	
FF3	Primary production	58500	15430	43070	35462	667	6046	768	737	127	1679	35	9851	11565	1	576	0	
FF3	Trade	75016	63156	11860	1447	851	0	15	407	9546	0	2652	402	3054	2	850	13	
FF3	Transformation	116902	95261	21641	4241	1323	0	9364	817	6713	0	1865	1178	3043	1	298	6	
octopus	Primary production	15736	1175	14561	319	2338		0	6586	11905	0	3307	89	3396	0	67	76	
octopus	Trade	54456	38705	15751	2008	1679		192	275	11872	0	3298	558	3856	4	1564	22	
octopus	Transformation	45421	23303	22118	893	2268		1307	155	17649	0	4903	248	5151	114	49598	39	
prawn	Primary production	7708	1108	6600	5143	979		137	574	342	0	95	1429	1523	0	111	4	
prawn	Trade	39311	26288	13023	684	835		0	448	11504	0	3196	190	3385	2	931	29	
prawn	Transformation	14530	10205	4325	376	1173		919	10	1857	0	516	104	620	15	6441	13	



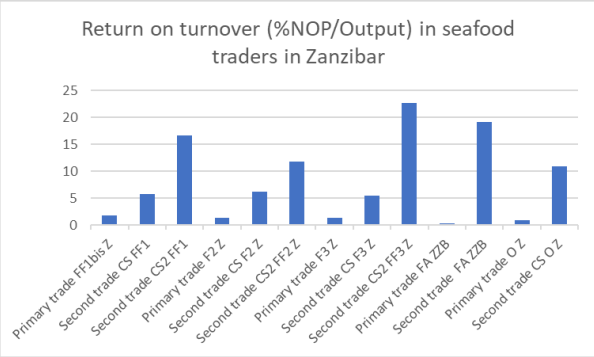


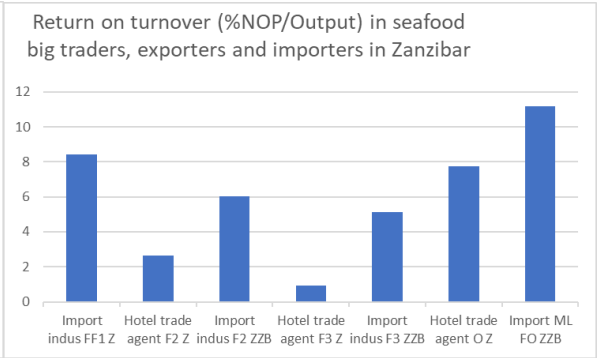
Section 3.2.1.3 Traders and artisanal processors in ZNZ

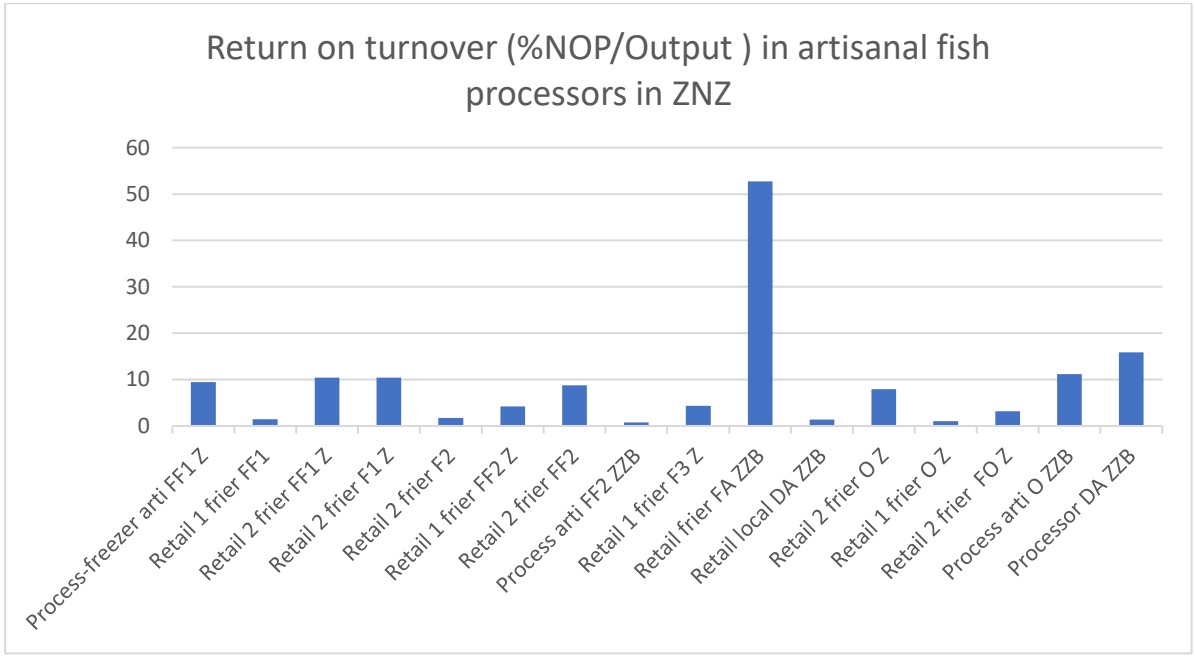
		Actor		Number of actor		Volume Inpu	Output	IGS	VA	Wages	Tax	Depreciatior	Net Operatir	%NOP/Output		
1	Trader	Primary trade FF1bis Z		289		12.4099998	56.033715	53.9854434	2.04827156	0.68037905	0.35019509	0	1.01769742	1.81622336	Primary trade FF1bis Z	
2	Trader	Second trade CS FF1		122		14	79.8150828	74.7041195	5.11096332	0.52509927	0.00505496	0	4.5808091	5.73927751	Second trade CS FF1	
3	Trader	Second trade CS2 FF1		30		14	83.1600016	66.0940021	17.0659995	0.52500003	2.64599996	0	13.8949995	16.7087533	Second trade CS2 FF1	
4	Trader	Primary trade F2 Z		669		12.4099998	76.6350019	74.3450011	2.29000079	0.68	0.56	0	1.05000078	1.37013213	Primary trade F2 Z	
5	Trader	Second trade CS F2 Z		169		14	106.394625	99.1849907	7.20963454	0.52497351	0.00505374	0	6.67960729	6.27814354	Second trade CS F2 Z	
6	Trader	Second trade CS2 FF2 Z		30		14	103.950004	88.494001	15.4560027	0.52500003	2.64599996	0	12.2850027	11.818184	Second trade CS2 FF2 Z	
7	Trader	Primary trade F3 Z		999		12.4099998	106.11	95.8999985	10.2100018	8.08000008	0.74000001	0.00208333	1.38791838	1.3079996	Primary trade F3 Z	
8	Trader	Second trade CS F3 Z		84		14	146.306201	137.695839	8.61036245	0.52502228	0.00505421	0	8.08028595	5.5228595	Second trade CS F3 Z	
9	Trader	Second trade CS2 FF3 Z		12		14	145.529994	109.494001	36.0359933	0.52500003	2.64599996	0	32.8649933	22.5829688	Second trade CS2 FF3 Z	
10	Trader	Primary trade FA ZZB		1034		7	9.23768982	9.20990019	0.02778963	0	0	0	0.02778963	0.3008288	Primary trade FA ZZB	
11	Trader	Second trade FA ZZB		538		10	18.0489922	14.2282054	3.82078679	0.37497909	0.0036098	0	3.4421979	19.0714133	Second trade FA ZZB	
12	Trader	Primary trade O Z		70		12.4099998	82.5682511	80.587334	1.98091715	0.68031518	0.56025956	0	0.7403424	0.89664295	Primary trade O Z	
13	Trader	Second trade CS O Z		3		14	119.738655	106.224289	13.5143651	0.52516955	0.00505563	0	12.98414	10.843733	Second trade CS O Z	
		Trader	Total	4049	Mean	12.6646153	87.194478	77.703625	9.49085297	1.09007216	0.7824833	0.00016026	7.61813725	8.01978152		
					St. Dev.	2.08026688	41.8295462	36.2612732	9.68168999	2.10747603	1.09324245	0.00057781	9.06262424	7.55350761		
1	Big trader	Import indus FF1 Z		3.08888889		135	594	445.900007	148.099993	0.69999999	93.8520002	3.58333325	49.9646596	8.41155886	Import indus FF1 Z	
2	Big trader	Hotel trade agent F2 Z		40.474359		78	608.033495	566.93123	41.102265	22.241225	2.18412027	0.60003308	16.0768866	2.64407911	Hotel trade agent F2 Z	
3	Big trader	Import indus F2 ZZB		3.08888889		135	810	660.144971	149.855029	0.69999999	96.6199989	3.58333325	48.9516963	6.0434193	Import indus F2 ZZB	
4	Big trader	Hotel trade agent F3 Z		120.820513		78	794.463731	761.932356	32.5313749	22.2009426	2.18409271	0.6000255	7.54631409	0.94986263	Hotel trade agent F3 Z	
5	Big trader	Import indus F3 ZZB		3.09259259		54	405	334.269978	70.7300223	0.28	46.1700001	3.43333326	20.846689	5.14733061	Import indus F3 ZZB	
6	Big trader	Hotel trade agent O Z		9.46153846		78	684.220877	606.095656	78.1252207	22.2471815	2.18470521	0.60019378	53.0931403	7.75964927	Hotel trade agent O Z	
7	Big trader	Import ML FO ZZB		23.8		25	375	325	50	0	8.0999999	0.005	41.8950001	11.172	Import ML FO ZZB	
		Big trader	Total	203.826781	Mean	83.2857143	610.102586	528.6106	81.4919864	9.76704987	35.8992739	1.77217887	34.0534837	6.0182714		
					St. Dev.	40.18173	171.777666	165.97155	48.7468005	11.6603501	43.4624542	1.66154214	18.7052919	3.4917582		
		Trader export DA ZZB		2		3800	26449.3776	18393.559	8055.81861	405.021125	291.015179	0	7359.7823	27.8259187	Trader export DA ZZB	
1	Artisanal pro	Process-freezer arti FF1 Z		1055		3.4000001	18.3702344	14.7820353	3.58819911	1.40078033	0.0140078	0.44024526	1.73316572	9.43464128	Process-freezer arti FF1 Z	
2	Artisanal pro	Retail 1 frier FF1		284		6	36.0068059	35.4366983	0.57010766	0	0.05461032	0	0.51549734	1.43166639	Retail 1 frier FF1	
3	Artisanal pro	Retail 2 frier FF1 Z		269		6	48.0148584	42.9432891	5.07156933	0	0.0546169	0	5.01695242	10.4487498	Retail 2 frier FF1 Z	
4	Artisanal pro	Retail 2 frier F1 Z		135		6	48.0016652	42.9314894	5.07017579	0	0.0546019	0	5.01557389	10.4487498	Retail 2 frier F1 Z	
5	Artisanal pro	Retail 2 frier F2		113		6	52.8779238	51.9181455	0.95977824	0	0.05458754	0	0.9051907	1.71184993	Retail 2 frier F2	
6	Artisanal pro	Retail 1 frier FF2 Z		395		6	47.9975765	45.9276811	2.06989539	0	0.05459725	0	2.01529814	4.19874979	Retail 1 frier FF2 Z	
7	Artisanal pro	Retail 2 frier FF2		328		6	57.0072204	51.9365783	5.07064214	0	0.05460692	0	5.01603522	8.7989472	Retail 2 frier FF2	
8	Artisanal pro	Process arti FF2 ZZB		1204		3.4000001	22.9500003	20.8999997	2.05000063	1.4000	0.03	0.44	0.18	0.78431371	Process arti FF2 ZZB	160622 corr
9	Artisanal pro	Retail 1 frier F3 Z		196		6	63.7527043	60.9325847	2.82011953	0	0.05460232	0	2.76551721	4.3378822	Retail 1 frier F3 Z	
10	Artisanal pro	Retail frier FA ZZB		532		9.60000038	43.1992833	20.399661	22.7996224	0	0.00909985	0	22.7905225	52.7567144	Retail frier FA ZZB	
11	Artisanal pro	Retail local DA ZZB		358		5	11.8793378	11.714347	0.16499076	0	0	0	0.16499076	1.38888855	Retail local DA ZZB	
12	Artisanal pro	Retail 2 frier O Z		0.33333333		6	61.3660591	56.4275526	4.93850657	0	0.05318392	0	4.88532265	7.96095222	Retail 2 frier O Z	
13	Artisanal pro	Retail 1 frier O Z		6.83333333		6	49.5159845	48.9458005	0.57018397	0	0.05461763	0	0.51556633	1.04121192	Retail 1 frier O Z	
14	Artisanal pro	Retail 2 frier FO Z		43.1666667		6	63.0048619	60.9347023	2.07015965	0	0.05460422	0	2.01555544	3.19904746	Retail 2 frier FO Z	
15	Artisanal pro	Process arti O ZZB		169.117642		3.4000001	27.5687359	22.6235821	4.94515379	1.40146082	0.0300313	0.44045913	3.07320254	11.1474191	Process arti O ZZB	
16	Artisanal pro	Processor DA ZZB		1448		20	26.2606006	14.3600007	11.9005998	7.30200035	0.13000001	0.30000002	4.16859947	15.8739685	Processor DA ZZB	
	Artisanal processor		Total	6536	Mean	6.55000004	42.3608658	37.6946342	4.66623155	0.71901509	0.04736049	0.10129403	3.7985619	9.06023452		
					St. Dev.	3.87642447	16.56788	17.5942979	5.62286521	1.84271112	0.02916223	0.18389353	5.38456876	12.5154986		
			Total	10791												

Actors	Estimated number		Vol. (t)	Output (MTZS)	IGS (MTZS)	VA (MTZS)	Wages(MTZS)	Tax (MTZS)	Depre-ciation (MTZS)	NOP (MTZS)	NOP/ Output (%)
Trader	4049	**Mean**	12.66	87.19	77.70	9.49	1.09	0.78	0.00	7.62	8.02
		St. Dev.	2.08	41.83	36.26	9.68	2.11	1.09	0.00	9.06	7.55
Big trader	**204**	**Mean**	83.29	610.10	528.61	81.49	9.77	35.90	1.77	34.05	6.02
		St. Dev.	40.18	171.78	165.97	48.75	11.66	43.46	1.66	18.71	3.49
Artisanal processor	**6536**	**Mean**	6.55	42.36	37.69	4.67	0.72	0.05	0.10	3.80	9.25
		St. Dev.	3.88	16.57	17.59	5.62	1.84	0.03	0.18	5.38	12.40
Dried Anchovy exporter	**2**		3800.00	26449.38	18393.56	8055.82	405.02	291.02	0.00	7359.78	27.83

Table: Details accounts and Profitability of seafood traders and artisanal processors in ZNZ





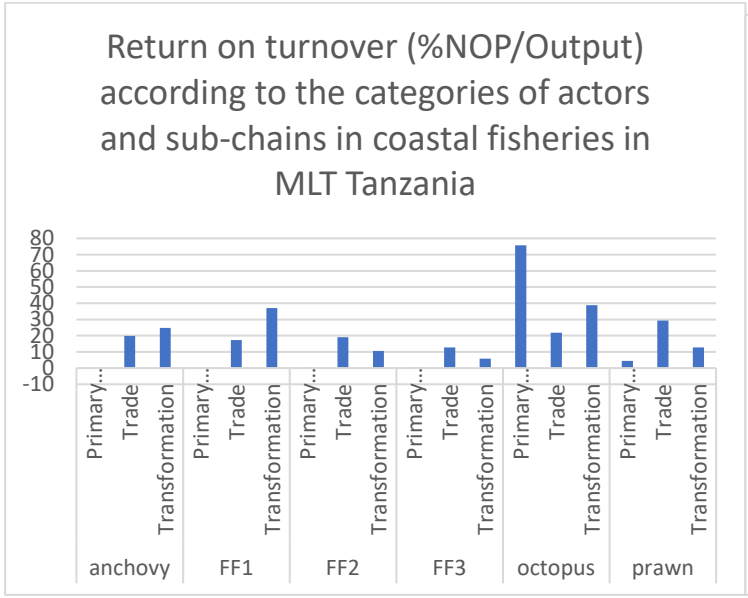

Return on turnover (%NOP/Output) in artisanal fish processors in ZNZ
60
50
40
30
20
10
0
Process-freezer arti FF1 Z
Retail 1 frier FF1
Retail 2 frier FF1 Z
Retail 2 frier F1 Z
Retail 2 frier F2
Retail 1 frier FF2 Z
Retail 2 frier FF2
Process arti FF2 ZZB
Retail 1 frier F3 Z
Retail frier FA ZZB
Retail local DA ZZB
Retail 2 frier O Z
Retail 1 frier O Z
Retail 2 frier FO Z
Process arti O ZZB
Processor DA ZZB

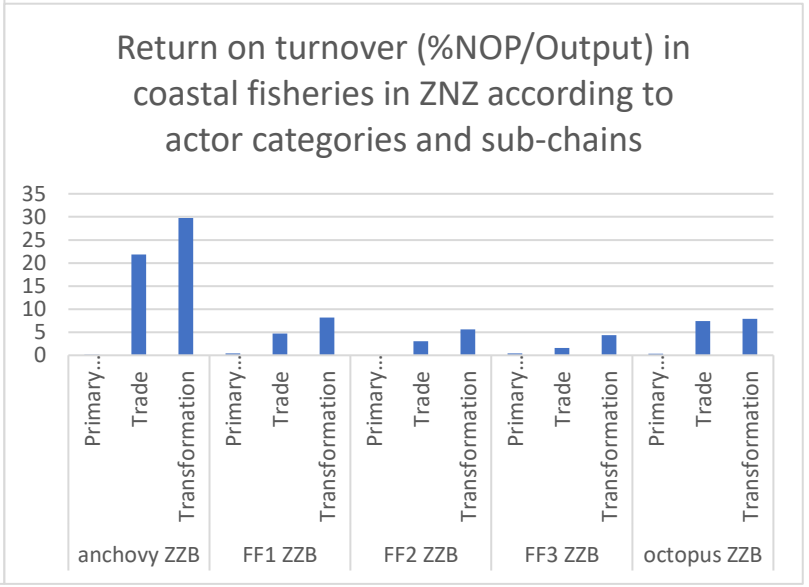
Section 3.2.1.3 Dried anchovy exporters from ZNZ: account detail (primary data, May 2022)

CEDAZ								
May 2022	calculations up to Dar and congo	big bag at 190 kg	20-to 25000 bags/y		**20000**		28.57142857	MK share
					per year			
	average vol/m				**3800**	**t/y**		
	purchasing price	in TZS/kg	**4502.6**		**17110**	in MTZS		
	selling price		**6960.5**		26450			
	income							
		cost TZS /big bag						
	in ZZB	packer	4500		90			
		loading -un load	9000		180			
		land transport to port	5000		100			
		coordination	2000		40			
		custom fees	3000		60			
		purchase	855500		17110			
		porter to boat	2500		50			
		sea transport	12000		240			
		ZZB district taxes	3000		60			
		total cost	893500		17870			
		tot cost- purchase	38000		760			
	in ML	unloading in Dar	2242	calc on bag basis	45			
		loading to truck	2000		40			
		truck transport	20000		400			
		last border service	23000	10 USD/bag	460			
		total ML cost up to Congo	47242		945			
		Total IGS costs	**940742**		**18815**		m	
		1% royalty to ZZB (TRA?)	**8555**		**171**	per month	per FTE	
		labour (15)			**45**	3.75	0.25	3
		total costs			**19031**			
		Net profit			**7419**	28 % turnover		

Section 3.2.1.4 In URT

Region	Main sub-chain	sub-chain	Operation	Total Output	IGS	VA	Wage	Taxe	Property Income	Depreciation	Op Number	NOP	FTE/land	FTE/NOP	FTE/wage	Tot FTE	income/y/m	income US/m	%NOP/Output
ZNZ	ZNZ anchovy-like	anchovy ZNZ	Primary production	22263	11438	10825	8412	268	957	1151	416	36	266	10	2337	2613	0	46	0
ZNZ	ZNZ anchovy-like	anchovy ZNZ	Trade	76929	58518	18410	1020	590	0	0	1932	16801		4667	283	4950	1	315	22
ZNZ	ZNZ anchovy-like	anchovy ZNZ	Transformation	61006	31645	29361	10573	193	0	434	1980	18160		5045	2937	7982	1	332	30
ZNZ	ZNZ finfish	FF1 ZNZ	Primary production	20513	6243	14271	12103	138	1289	652	946	88	358	25	3362	3745	0	110	0
ZNZ	ZNZ finfish	FF1 ZNZ	Trade	30233	28052	2180	278	471	0	11	444	1420	0	395	77	472	0	116	5
ZNZ	ZNZ finfish	FF1 ZNZ	Transformation	49022	43024	5998	1478	52	0	465	1744	4003	0	1112	411	1523	0	83	8
ZNZ	ZNZ finfish	FF2 ZNZ	Primary production	55800	13351	42449	35881	221	5138	1162	1598	46	1427	13	9967	11407	0	207	0
ZNZ	ZNZ finfish	FF2 ZNZ	Trade	99508	94169	5339	1462	841	0	35	912	3001	0	833	406	1240	0	119	3
ZNZ	ZNZ finfish	FF2 ZNZ	Transformation	72489	66130	6359	1685	82	0	530	2038	4063	0	1129	468	1597	0	72	6
ZNZ	ZNZ finfish	FF3 ZNZ	Primary production	74400	14944	59456	50046	221	7734	1162	1598	294	2148	82	13902	16131	1	288	0
ZNZ	ZNZ finfish	FF3 ZNZ	Trade	217311	201806	15505	10807	1178	0	85	1219	3435	0	954	3002	3956	0	102	2
ZNZ	ZNZ finfish	FF3 ZNZ	Transformation	12517	11963	554	0	11	0	0	196	543	0	151	0	151	0	100	4
ZNZ	ZNZ octopus	octopus ZNZ	Primary production	7195	3262	3933	3680	40	12	176	449	25	3	913	1022	1029	0	99	0
ZNZ	ZNZ octopus	octopus ZNZ	Trade	21491	19385	2107	259	252	0	6	106	1589		5826	72	513	1	545	7
ZNZ	ZNZ octopus	octopus ZNZ	Transformation	7741	6810	931	237	8	0	74	219	612		2062	66	236	0	101	8
MLT	MLT anchovy-like	anchovy MLT	Primary production	13200	8167	5033	4118	97	390	415	150	12	108	3	1144	1256	0	62	0
MLT	MLT anchovy-like	anchovy MLT	Trade	58455	32987	25468	13038	820	0	0	2922	11610	0	3225	3622	6847	0	144	20
MLT	MLT anchovy-like	anchovy MLT	Transformation	20286	10076	10211	4986	64	0	135	549	5026	0	1396	1385	2781	1	332	25
MLT	MLT finfish	FF1 MLT	Primary production	21078	12789	8289	6883	280	133	995	561	-2	444	-1	1912	2356	0	113	0
MLT	MLT finfish	FF1 MLT	Trade	56805	42149	14656	2477	2259	0	72	981	9848	0	2736	688	3424	1	364	17
MLT	MLT finfish	FF1 MLT	Transformation	91773	52403	39369	1423	1304	0	2623	1831	34020	0	9450	395	9845	2	673	37
MLT	MLT finfish	FF2 MLT	Primary production	50232	18612	31620	25782	616	4035	1087	907	101	1121	28	7162	8310	1	321	0
MLT	MLT finfish	FF2 MLT	Trade	136027	101916	34110	5956	2255	0	63	1349	25837	0	7177	1654	8831	2	694	19
MLT	MLT finfish	FF2 MLT	Transformation	89022	71932	17090	2312	1123	0	4300	1458	9355	0	2599	642	3241	1	233	11
MLT	MLT finfish	FF3 MLT	Primary production	58500	15430	43070	35462	667	6046	768	737	127	1679	35	9851	11565	1	576	0
MLT	MLT finfish	FF3 MLT	Trade	75016	63156	11860	1447	851	0	15	407	9546	0	2652	402	3054	2	850	13
MLT	MLT finfish	FF3 MLT	Transformation	116902	95261	21641	4241	1323	0	9364	817	6713	0	1865	1178	3043	1	298	6
MLT	MLT octopus	octopus MLT	Primary production	15736	1175	14561	319	2338		0	6586	11905	0	3307	89	3396	0	67	76
MLT	MLT octopus	octopus MLT	Trade	54456	38705	15751	2008	1679		192	275	11872	0	3298	558	3856	4	1564	22
MLT	MLT octopus	octopus MLT	Transformation	45421	23303	22118	893	2268		1307	155	17649	0	4903	248	5151	114	49598	39
MLT	MLT prawns	prawn MLT	Primary production	7708	1108	6600	5143	979		137	574	342	0	95	1429	1523	0	111	4
MLT	MLT prawns	prawn MLT	Trade	39311	26288	13023	684	835		0	448	11504	0	3196	190	3385	2	931	29
MLT	MLT prawns	prawn ML	Transformation	14530	10205	4325	376	1173		919	10	1857	0	516	104	620	15	6441	13





ZNZ=ZZN, MLT= ML

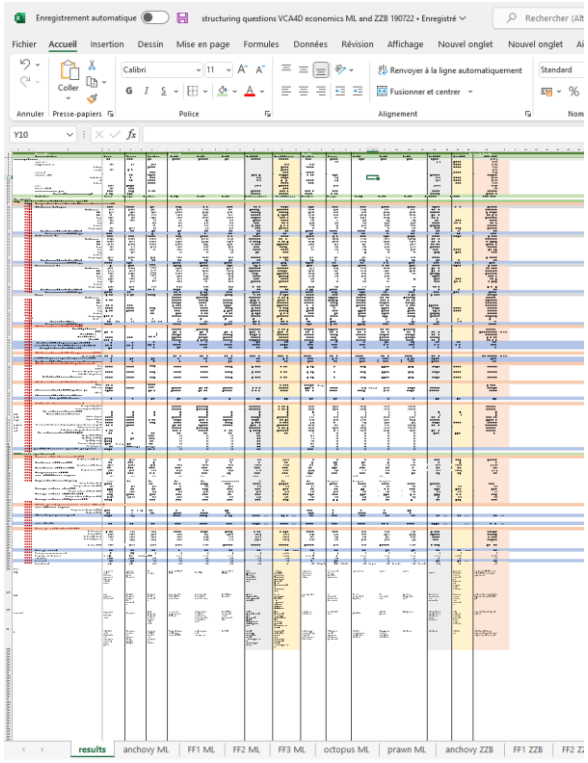
Section 3.2.2 Contribution to GDP/ Total effects/international viability/

Section 3.2.2 Data base on Excel (copies of the main results sheet)

Copies of Data basis calculations in Excel

File name: “Structuring questions VCA4D economics ML + ZZB 190722.xls”

Update: 19/07/22 → Pdf file for the main sheet of Results. Others sheets are edition of the sub-chain results, calculations.

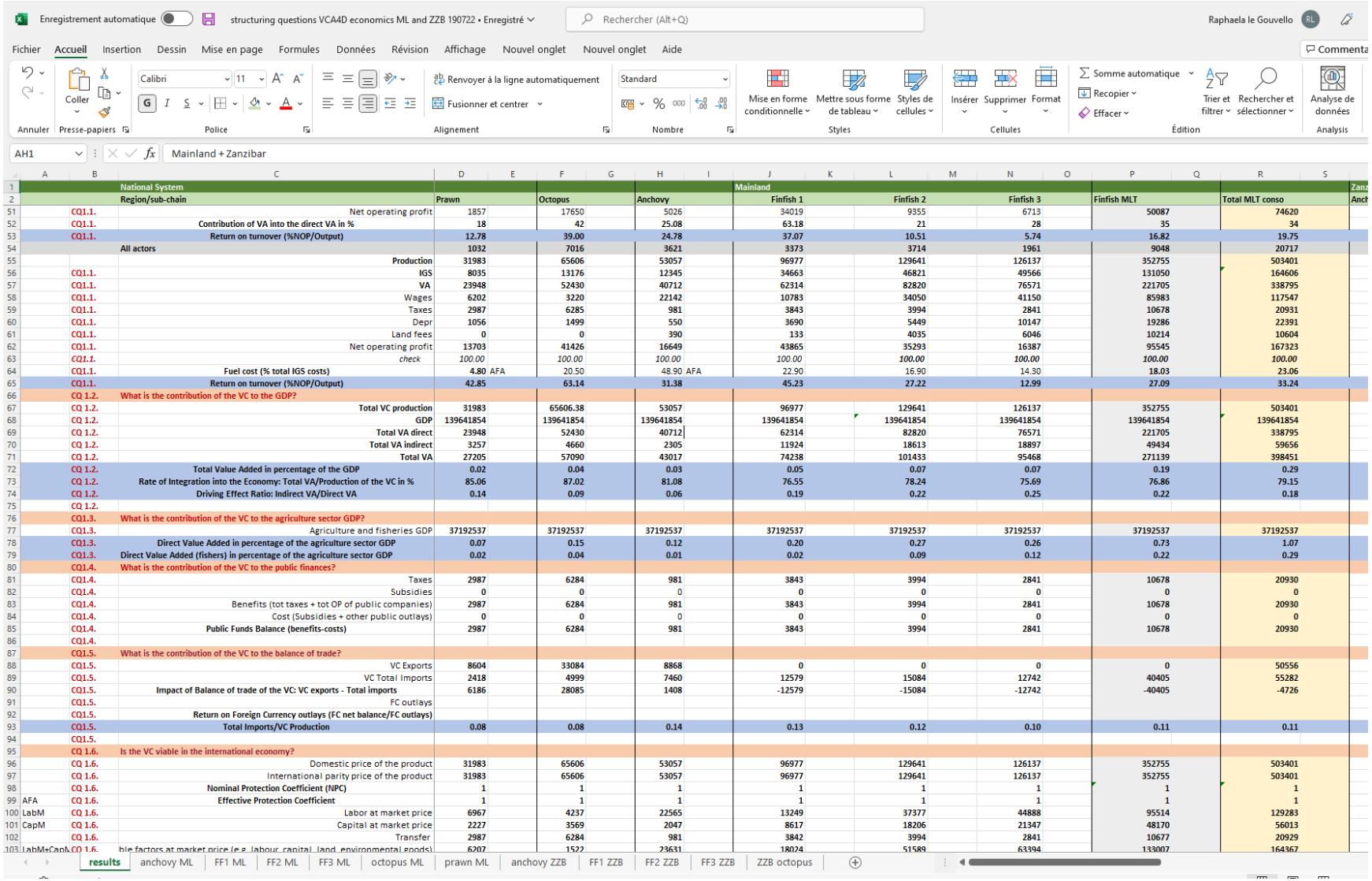


structuring questions VCA4D economics ML and ZZB 190722

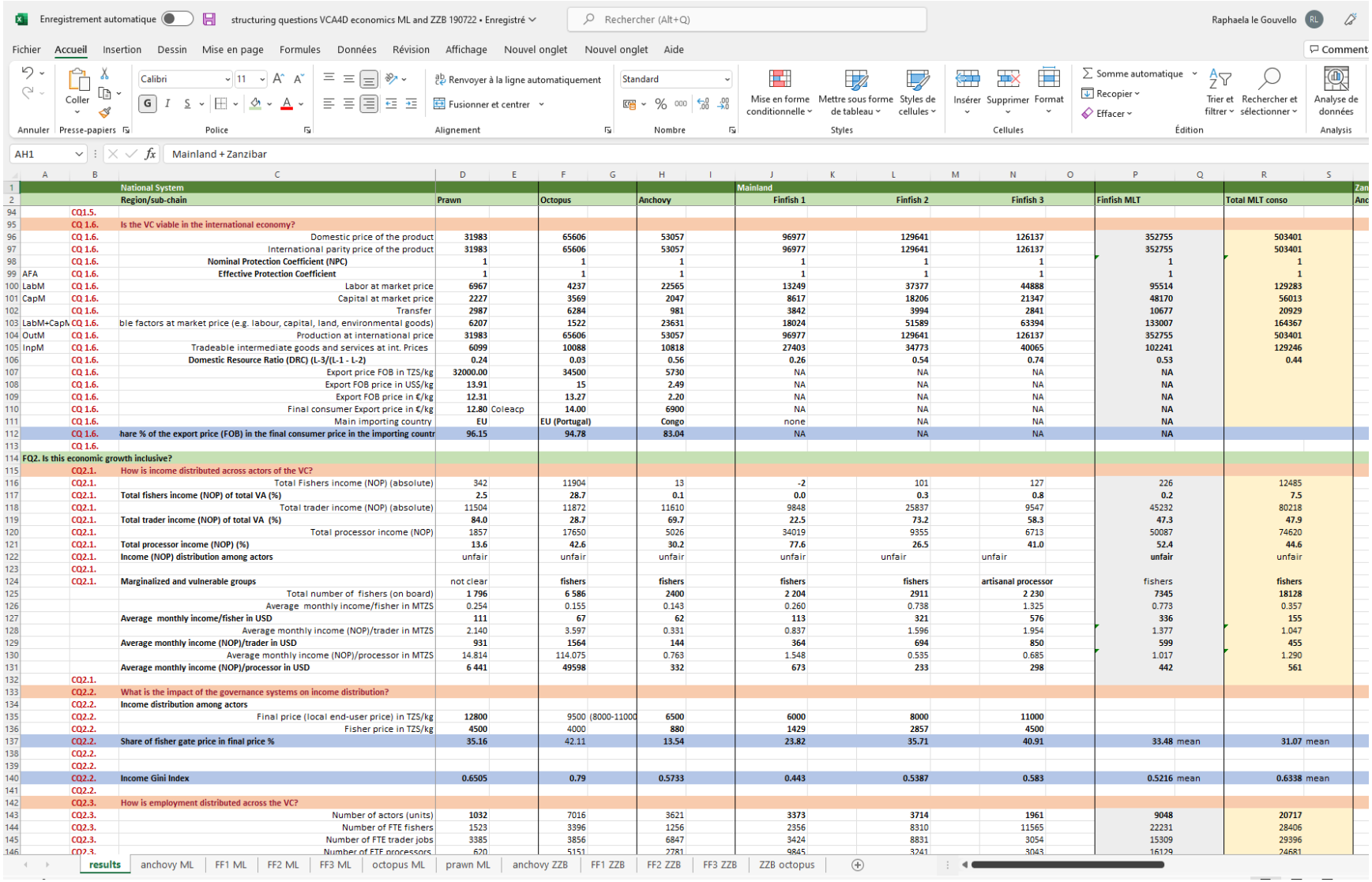
AH1 Mainland + Zanzibar

	A	B	C	D	F	H	J	L	N	P	R
1			National System				Mainland				
2			Region/sub-chain	Prawn	Octopus	Anchovy	Finfish 1	Finfish 2	Finfish 3	Finfish MLT	Total MLT conso
3	annual production (t)			2300	4250	15000	14750	17582	13000	45332	66882
4			tot import in volume (t)	0	0	0	0	0	0	0	0
5			tot export in volume (t)	269	1070	1285	0	0	0	0	2624
6			dried export	0	0	1285				0	1285
7			frozen export	269	1070					0	1339
8			total non food (t)	0	0	495				0	495
9			total local market (t)	0	750	5168	0	0	0	16201	22119
10			fresh/chilled/frozen	0	500	297				8817	9614
11			fried	0	250	2376				7384	10010
12			dried local	0	0	2495				0	2495
13			total tourism (t)	1299	1413	0				12686	15398
14			Total volumes ZZB/ML	257	286	0				0	543
15			tot losses or autoconsumption (t)	475	731	8052				16445	25703
16			Total food balance on net weight	2031	3180	13220				45332	63763
17			Sub-chain	Prawn	Octopus	Anchovy	Finfish 1	Finfish 2	Finfish 3	Finfish consolidation	Total MLT conso
18	Frame question										
19	FQ1	What is the contribution of the VC to the economic growth?									
20		CQ1.1.	How profitable and sustainable are the VC activities for the actors involved ?								
21		CQ1.1.	Fishers Actor number (fishing unit)	574	6586	150	561	907	737	2205	9515
22		CQ1.1.	Production	7708	15736	13200	21078	50232	58500	129810	166454
23		CQ1.1.	IGS	1108	1175	8167	12789	18612	15430	46831	57281
24		CQ1.1.	VA	6600	14561	5033	8289	31620	43070	82979	109173
25		CQ1.1.	Wages	5142	319	4118	6883	25782	35462	68127	77706
26		CQ1.1.	Taxes	979	2338	97	280	616	667	1563	4977
27		CQ1.1.	Depr	137	0	415	995	1087	768	2850	3402
28		CQ1.1.	Land fees	0	0	390	133	4035	6046	10214	10604
29		CQ1.1.	Net operating profit	342	11904	13	-2	101	127	226	12485
30		CQ1.1.	Contribution of VA into the direct VA in %	28	28	12	13	38	56	37	32
31		CQ1.1.	Return on turnover (%NOP/Output)	4.44	75.65	0.10	-0.01	0.20	0.22	0.17	7.50
32		CQ1.1.	Traders actor number	448	275	2922	981	1349	407	2737	6382
33		CQ1.1.	Production	39311	54456	58455	56805	136027	75016	267848	420070
34		CQ1.1.	IGS	26288	38705	32987	42149	101916	63156	207221	305201
35		CQ1.1.	VA	13023	15751	25468	14656	34110	11860	60626	114868
36		CQ1.1.	Wages	684	2008	13038	2477	5956	1447	9880	25610
37		CQ1.1.	Taxes	835	1679	820	2259	2255	851	5365	8699
38		CQ1.1.	Depr	0	192	0	72	63	15	150	342
39		CQ1.1.	Land fees	0	0	0	0	0	0	0	0
40		CQ1.1.	Net operating profit	11504	11872	11610	9848	25837	9547	45232	80218
41		CQ1.1.	Contribution of VA into the direct VA in %	54	30	63	24	41	15	27	34
42		CQ1.1.	Return on turnover (%NOP/Output)	29.26	21.80	19.86	17.34	18.99	12.73	16.89	19.10
43		CQ1.1.	Processors actor number	10	155	549	1831	1458	817	4106	4820
44		CQ1.1.	Production	14530	45251	20286	91773	89022	116902	297697	377764
45		CQ1.1.	IGS	10205	23303	10076	52403	71932	95261	219596	263180
46		CQ1.1.	VA	4325	22118	10211	39369	17090	21641	78100	114754
47		CQ1.1.	Wages	376	893	4986	1423	2312	4241	7976	14231
48		CQ1.1.	Taxes	1173	2268	64	1304	1123	1323	3750	7255
49		CQ1.1.	Depr	919	1307	135	2623	4300	9364	16287	18648
50		CQ1.1.	Land fees	0	0	0	0	0	0	0	0
51		CQ1.1.	Net operating profit	1857	17650	5026	34019	9355	6713	50087	74620
52		CQ1.1.	Contribution of VA into the direct VA in %	18	42	25.08	63.18	21	28	35	34
53		CQ1.1.	Return on turnover (%NOP/Output)	12.78	39.00	24.78	37.07	10.51	5.74	16.82	19.75
54			All actors	1032	7016	3621	3373	3714	1961	9048	20717
55			Production	31983	65606	53057	96977	129641	126137	352755	503401

results | anchovy ML | FF1 ML | FF2 ML | FF3 ML | octopus ML | prawn ML | anchovy ZZB | FF1 ZZB | FF2 ZZB | FF3 ZZB | ZZB octopus



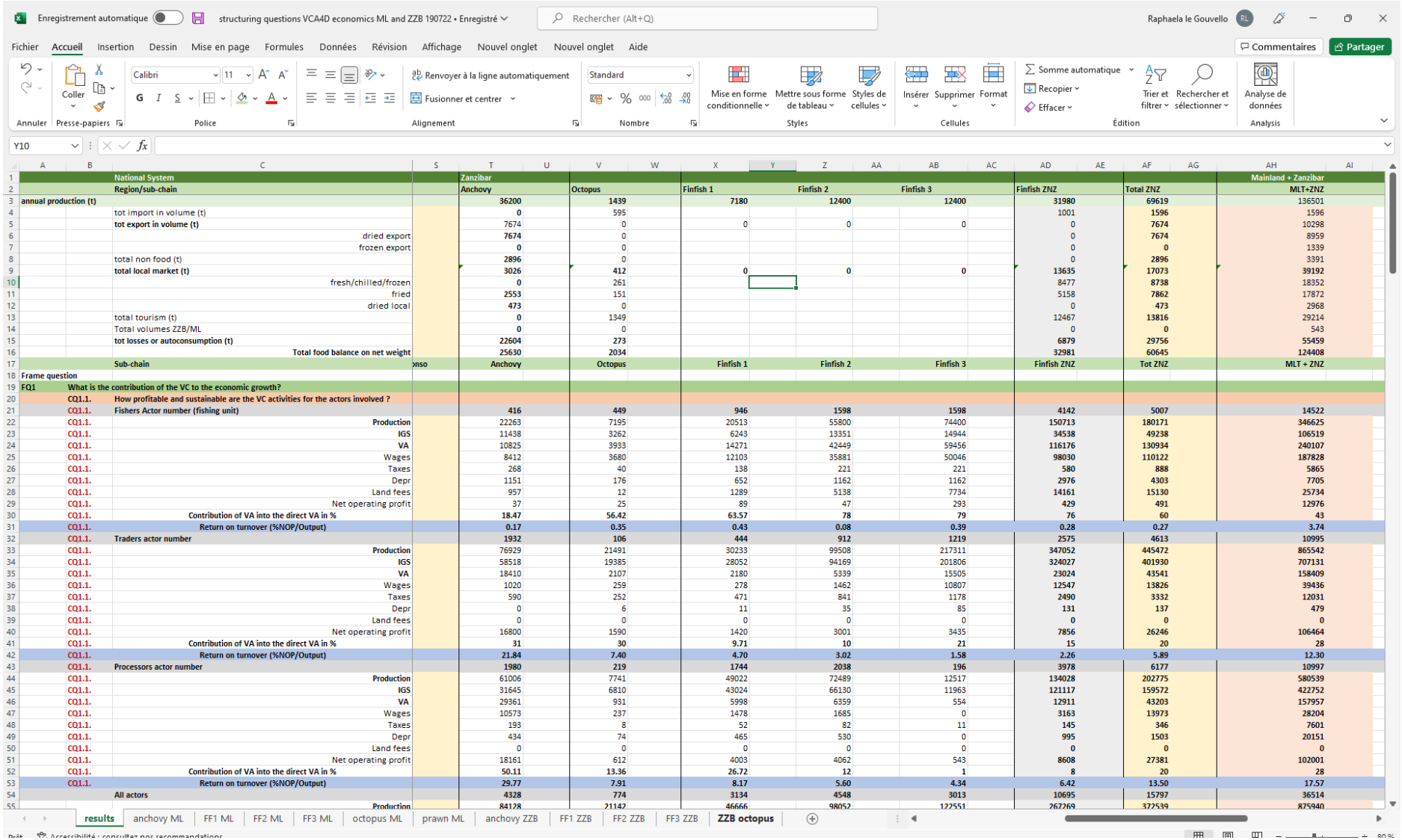
			National System						Mainland								Zanz
			Region/sub-chain	Prawn		Octopus		Anchovy		Finfish 1	Finfish 2	Finfish 3		Finfish MLT		Total MLT conso		Anch
51		CQ1.1.	Net operating profit	1857		17650		5026		34019	9355	6713		50087		74620		
52		CQ1.1.	Contribution of VA into the direct VA in %	18		42		25.08		63.18	21	28		35		34		
53		CQ1.1.	Return on turnover (%NOP/Output)	12.78		39.00		24.78		37.07	10.51	5.74		16.82		19.75		
54			All actors	1032		7016		3621		3373	3714	1961		9048		20717		
55			Production	31983		65606		53057		96977	129641	126137		352755		503401		
56		CQ1.1.	IGS	8035		13176		12345		34663	46821	49566		131050		164606		
57		CQ1.1.	VA	23948		52430		40712		62314	82820	76571		221705		338795		
58		CQ1.1.	Wages	6202		3220		22142		10783	34050	41150		85983		117547		
59		CQ1.1.	Taxes	2987		6285		981		3843	3994	2841		10678		20931		
60		CQ1.1.	Depr	1056		1499		550		3690	5449	10147		19286		22391		
61		CQ1.1.	Land fees	0		0		390		133	4035	6046		10214		10604		
62		CQ1.1.	Net operating profit	13703		41426		16649		43865	35293	16387		95545		167323		
63		*CQ1.1.*	*check*	*100.00*		*100.00*		*100.00*		*100.00*	*100.00*	*100.00*		*100.00*		*100.00*		
64		CQ1.1.	Fuel cost (% total IGS costs)	4.80	AFA	20.50		48.90	AFA	22.90	16.90	14.30		18.03		23.06		
65		CQ1.1.	Return on turnover (%NOP/Output)	42.85		63.14		31.38		45.23	27.22	12.99		27.09		33.24		
66		CQ 1.2.	What is the contribution of the VC to the GDP?															
67		CQ 1.2.	Total VC production	31983		65606.38		53057		96977	129641	126137		352755		503401		
68		CQ 1.2.	GDP	139641854		139641854		139641854		139641854	139641854	139641854		139641854		139641854		
69		CQ 1.2.	Total VA direct	23948		52430		40712		62314	82820	76571		221705		338795		
70		CQ 1.2.	Total VA indirect	3257		4660		2305		11924	18613	18897		49434		59656		
71		CQ 1.2.	Total VA	27205		57090		43017		74238	101433	95468		271139		398451		
72		CQ 1.2.	Total Value Added in percentage of the GDP	0.02		0.04		0.03		0.05	0.07	0.07		0.19		0.29		
73		CQ 1.2.	Rate of Integration into the Economy: Total VA/Production of the VC in %	85.06		87.02		81.08		76.55	78.24	75.69		76.86		79.15		
74		CQ 1.2.	Driving Effect Ratio: Indirect VA/Direct VA	0.14		0.09		0.06		0.19	0.22	0.25		0.22		0.18		
75		CQ 1.2.																
76		CQ1.3.	What is the contribution of the VC to the agriculture sector GDP?															
77		CQ1.3.	Agriculture and fisheries GDP	37192537		37192537		37192537		37192537	37192537	37192537		37192537		37192537		
78		CQ1.3.	Direct Value Added in percentage of the agriculture sector GDP	0.07		0.15		0.12		0.20	0.27	0.26		0.73		1.07		
79		CQ1.3.	Direct Value Added (fishers) in percentage of the agriculture sector GDP	0.02		0.04		0.01		0.02	0.09	0.12		0.22		0.29		
80		CQ1.4.	What is the contribution of the VC to the public finances?															
81		CQ1.4.	Taxes	2987		6284		981		3843	3994	2841		10678		20930		
82		CQ1.4.	Subsidies	0		0		0		0	0	0		0		0		
83		CQ1.4.	Benefits (tot taxes + tot OP of public companies)	2987		6284		981		3843	3994	2841		10678		20930		
84		CQ1.4.	Cost (Subsidies + other public outlays)	0		0		0		0	0	0		0		0		
85		CQ1.4.	Public Funds Balance (benefits-costs)	2987		6284		981		3843	3994	2841		10678		20930		
86		CQ1.4.																
87		CQ1.5.	What is the contribution of the VC to the balance of trade?															
88		CQ1.5.	VC Exports	8604		33084		8868		0	0	0		0		50556		
89		CQ1.5.	VC Total Imports	2418		4999		7460		12579	15084	12742		40405		55282		
90		CQ1.5.	Impact of Balance of trade of the VC: VC exports - Total imports	6186		28085		1408		-12579	-15084	-12742		-40405		-4726		
91		CQ1.5.	FC outlays															
92		CQ1.5.	Return on Foreign Currency outlays (FC net balance/FC outlays)															
93		CQ1.5.	Total Imports/VC Production	0.08		0.08		0.14		0.13	0.12	0.10		0.11		0.11		
94		CQ1.5.																
95		CQ 1.6.	Is the VC viable in the international economy?															
96		CQ 1.6.	Domestic price of the product	31983		65606		53057		96977	129641	126137		352755		503401		
97		CQ 1.6.	International parity price of the product	31983		65606		53057		96977	129641	126137		352755		503401		
98		CQ 1.6.	Nominal Protection Coefficient (NPC)	1		1		1		1	1	1		1		1		
99	AFA	CQ 1.6.	Effective Protection Coefficient	1		1		1		1	1	1		1		1		
100	LabM	CQ 1.6.	Labor at market price	6967		4237		22565		13249	37377	44888		95514		129283		
101	CapM	CQ 1.6.	Capital at market price	2227		3569		2047		8617	18206	21347		48170		56013		
102		CQ 1.6.	Transfer	2987		6284		981		3842	3994	2841		10677		20929		
103	LabM+CapM	CQ 1.6.	ble factors at market price (e.g. labour, capital, land, environmental goods)	6207		1522		23631		18024	51589	63394		133007		164367		



			National System						Mainland								Zan
			Region/sub-chain	Prawn		Octopus		Anchovy	Finfish 1	Finfish 2	Finfish 3	Finfish MLT		Total MLT conso		Anc
94		CQ1.5.														
95		CQ 1.6.	Is the VC viable in the international economy?													
96		CQ 1.6.	Domestic price of the product	31983		65606		53057	96977	129641	126137	352755		503401		
97		CQ 1.6.	International parity price of the product	31983		65606		53057	96977	129641	126137	352755		503401		
98		CQ 1.6.	Nominal Protection Coefficient (NPC)	1		1		1	1	1	1	1		1		
99	AFA	CQ 1.6.	Effective Protection Coefficient	1		1		1	1	1	1	1		1		
100	LabM	CQ 1.6.	Labor at market price	6967		4237		22565	13249	37377	44888	95514		129283		
101	CapM	CQ 1.6.	Capital at market price	2227		3569		2047	8617	18206	21347	48170		56013		
102		CQ 1.6.	Transfer	2987		6284		981	3842	3994	2841	10677		20929		
103	LabM+CapM	CQ 1.6.	ble factors at market price (e.g. labour, capital, land, environmental goods)	6207		1522		23631	18024	51589	63394	133007		164367		
104	OutM	CQ 1.6.	Production at international price	31983		65606		53057	96977	129641	126137	352755		503401		
105	InpM	CQ 1.6.	Tradeable intermediate goods and services at int. Prices	6099		10088		10818	27403	34773	40065	102241		129246		
106		CQ 1.6.	Domestic Resource Ratio (DRC) (L-3/(L-1 - L-2)	0.24		0.03		0.56	0.26	0.54	0.74	0.53		0.44		
107		CQ 1.6.	Export price FOB in TZS/kg	32000.00		34500		5730	NA	NA	NA	NA				
108		CQ 1.6.	Export FOB price in US$/kg	13.91		15		2.49	NA	NA	NA	NA				
109		CQ 1.6.	Export FOB price in €/kg	12.31		13.27		2.20	NA	NA	NA	NA				
110		CQ 1.6.	Final consumer Export price in €/kg	12.80	Coleacp	14.00		6900	NA	NA	NA	NA				
111		CQ 1.6.	Main importing country	EU		EU (Portugal)		Congo	none	NA	NA	NA				
112		CQ 1.6.	hare % of the export price (FOB) in the final consumer price in the importing countr	96.15		94.78		83.04	NA	NA	NA	NA				
113		CQ 1.6.														
114	FQ2. Is this economic growth inclusive?															
115		CQ2.1.	How is income distributed across actors of the VC?													
116		CQ2.1.	Total Fishers income (NOP) (absolute)	342		11904		13	-2	101	127	226		12485		
117		CQ2.1.	Total fishers income (NOP) of total VA (%)	2.5		28.7		0.1	0.0	0.3	0.8	0.2		7.5		
118		CQ2.1.	Total trader income (NOP) (absolute)	11504		11872		11610	9848	25837	9547	45232		80218		
119		CQ2.1.	Total trader income (NOP) of total VA (%)	84.0		28.7		69.7	22.5	73.2	58.3	47.3		47.9		
120		CQ2.1.	Total processor income (NOP)	1857		17650		5026	34019	9355	6713	50087		74620		
121		CQ2.1.	Total processor income (NOP) (%)	13.6		42.6		30.2	77.6	26.5	41.0	52.4		44.6		
122		CQ2.1.	Income (NOP) distribution among actors	unfair		unfair		unfair	unfair	unfair	unfair	unfair		unfair		
123		CQ2.1.														
124		CQ2.1.	Marginalized and vulnerable groups	not clear		fishers		fishers	fishers	fishers	artisanal processor	fishers		fishers		
125			Total number of fishers (on board)	1 796		6 586		2400	2 204	2911	2 230	7345		18128		
126			Average monthly income/fisher in MTZS	0.254		0.155		0.143	0.260	0.738	1.325	0.773		0.357		
127			Average monthly income/fisher in USD	111		67		62	113	321	576	336		155		
128			Average monthly income (NOP)/trader in MTZS	2.140		3.597		0.331	0.837	1.596	1.954	1.377		1.047		
129			Average monthly income (NOP)/trader in USD	931		1564		144	364	694	850	599		455		
130			Average monthly income (NOP)/processor in MTZS	14.814		114.075		0.763	1.548	0.535	0.685	1.017		1.290		
131			Average monthly income (NOP)/processor in USD	6 441		49598		332	673	233	298	442		561		
132		CQ2.1.														
133		CQ2.2.	What is the impact of the governance systems on income distribution?													
134		CQ2.2.	Income distribution among actors													
135		CQ2.2.	Final price (local end-user price) in TZS/kg	12800		9500	(8000-11000	6500	6000	8000	11000					
136		CQ2.2.	Fisher price in TZS/kg	4500		4000		880	1429	2857	4500					
137		CQ2.2.	Share of fisher gate price in final price %	35.16		42.11		13.54	23.82	35.71	40.91	33.48	mean	31.07	mean	
138		CQ2.2.														
139		CQ2.2.														
140		CQ2.2.	Income Gini Index	0.6505		0.79		0.5733	0.443	0.5387	0.583	0.5216	mean	0.6338	mean	
141		CQ2.2.														
142		CQ2.3.	How is employment distributed across the VC?													
143		CQ2.3.	Number of actors (units)	1032		7016		3621	3373	3714	1961	9048		20717		
144		CQ2.3.	Number of FTE fishers	1523		3396		1256	2356	8310	11565	22231		28406		
145		CQ2.3.	Number of FTE trader jobs	3385		3856		6847	3424	8831	3054	15309		29396		
146		CQ2.3.	Number of FTE processors	620		5151		2781	9845	3241	3043	16129		24681		

		National System				Mainland				
		Region/sub-chain	Prawn	Octopus	Anchovy	Finfish 1	Finfish 2	Finfish 3	Finfish MLT	Total MLT conso
139	CQ2.2.									
140	CQ2.2.	**Income Gini Index**	**0.6505**	**0.79**	**0.5733**	**0.443**	**0.5387**	**0.583**	**0.5216** mean	**0.6338** mean
141	CQ2.2.									
142	CQ2.3.	How is employment distributed across the VC?								
143	CQ2.3.	Number of actors (units)	**1032**	7016	3621	**3373**	**3714**	**1961**	**9048**	**20717**
144	CQ2.3.	Number of FTE fishers	1523	3396	1256	2356	8310	11565	22231	28406
145	CQ2.3.	Number of FTE trader jobs	3385	3856	6847	3424	8831	3054	15309	29396
146	CQ2.3.	Number of FTE processors	620	5151	2781	9845	3241	3043	16129	24681
147	CQ2.3.									
148	CQ2.3.	Number of jobs (FTE)	5529	12402	10883	15625	20383	**17662**	**53669**	**82483**
149	CQ2.3.									
150	CQ2.3.	**Self employment rate %**	**87**	**59**	**42**	**90**	**57**	**28**	**58**	**62** mean
151	CQ2.3.	Formal employment (writtent contract)/unformal in %	**30**	**41**	<1	<1	<1	<1	<1	variable
152	CQ2.3.	Temporary/permanent (% temporary/total)	**almost 100**	**half**	**seasonal 2/3**	almost null	almost null	almost null	almost null	variable
153	CQ2.3.	unskilled in %/total	**>95**	**>95**	>95	>95	>95	>95	>95	>95
154	CQ2.3.	Female/total in %	**22**	**17**	26	76	29	12	39	26
155	CQ2.3.	Vulnerable/total in %	**>90**	**>60**	>97	>99	>99	>99	>99	>60
156										
157 Answers										
158 FQ1			mostly important for int trade balance, also seasonal but income ok for fishers, artisanal.	important for VA, int trade, positive balance	idem octopus	significant for VA, jobs, FTE	idem FF1	less significant than FF2 but still	**very significant but low contrib to international**	**minor for total TZ economy but local significant contrib. Almost balanced for international.**
159 FQ2			quite inequality, to be monitored	but high degree of inequality, fishers vulnerable	but again fishers the most vulnerable	quite equitable, although fishers income critical	quite equitable, acceptable income for most actors	idem FF2, plus better for fishers	**quite equitable compared to others**	**some unequity but the most important value chains (FF) shows inclusiveness ok**
160 econ viability			depending on export market	idem prawns	high degree of dependency on regional market + stocks	some actors are negative or no NOP, critical	rather good for all actors, but no contribution to international trade except indirect effects	idem FF2, but lower profitability for small scale processors and traders	**rather good and very diversified, high degree of adaptatation.**	**Very diversified among subchains, but overall good economic viability.**
161 risk			linked to this market dependancy + overexploitation if no mngt plan in place.	idem prawns, closure system is an oportunity but also need for SSF rights.	interaction with ZZB, need for more cooperation otherwise.	depending on stocks, fishering efficiency CPFU	low risk except on stock managements	idem FF2	**low risk except related to stock management, overexploitation.**	**overall risk linked to social issues (inclusiveness) and stock managements.**

results | anchovy ML | FF1 ML | FF2 ML | FF3 ML | octopus ML | prawn ML | anchovy ZZB | FF1 ZZB | FF2 ZZB | FF3 ZZB | ZZB octopus

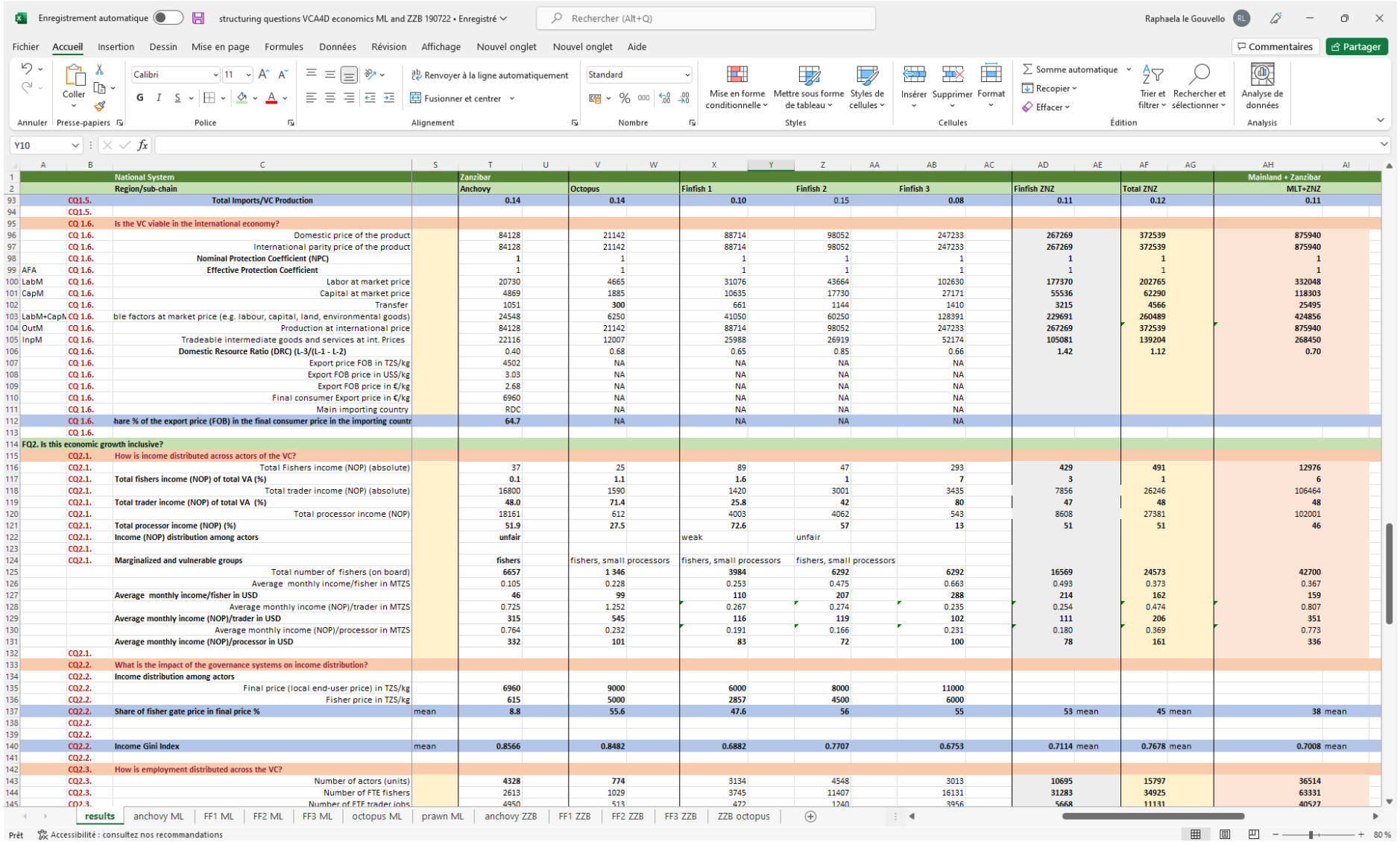


				Zanzibar							Mainland + Zanzibar
		National System									
		Region/sub-chain		Anchovy	Octopus	Finfish 1	Finfish 2	Finfish 3	Finfish ZNZ	Total ZNZ	MLT+ZNZ
annual production (t)				36200	1439	7180	12400	12400	31980	69619	136501
		tot import in volume (t)		0	595				1001	1596	1596
		tot export in volume (t)		7674	0	0	0	0	0	7674	10298
		dried export		7674	0				0	7674	8959
		frozen export		0	0				0	0	1339
		total non food (t)		2896	0				0	2896	3391
		total local market (t)		3026	412	0	0	0	13635	17073	39192
		fresh/chilled/frozen		0	261				8477	8738	18352
		fried		2553	151				5158	7862	17872
		dried local		473	0				0	473	2968
		total tourism (t)		0	1349				12467	13816	29214
		Total volumes ZZB/ML		0	0				0	0	543
		tot losses or autoconsumption (t)		22604	273				6879	29756	55459
		Total food balance on net weight		25630	2034				32981	60645	124408
		Sub-chain	onso	Anchovy	Octopus	Finfish 1	Finfish 2	Finfish 3	Finfish ZNZ	Tot ZNZ	MLT + ZNZ
Frame question											
FQ1	What is the contribution of the VC to the economic growth?										
	CQ1.1.	How profitable and sustainable are the VC activities for the actors involved ?									
	CQ1.1.	Fishers Actor number (fishing unit)		416	449	946	1598	1598	4142	5007	14522
	CQ1.1.	Production		22263	7195	20513	55800	74400	150713	180171	346625
	CQ1.1.	IGS		11438	3262	6243	13351	14944	34538	49238	106519
	CQ1.1.	VA		10825	3933	14271	42449	59456	116176	130934	240107
	CQ1.1.	Wages		8412	3680	12103	35881	50046	98030	110122	187828
	CQ1.1.	Taxes		268	40	138	221	221	580	888	5865
	CQ1.1.	Depr		1151	176	652	1162	1162	2976	4303	7705
	CQ1.1.	Land fees		957	12	1289	5138	7734	14161	15130	25734
	CQ1.1.	Net operating profit		37	25	89	47	293	429	491	12976
	CQ1.1.	Contribution of VA into the direct VA in %		18.47	56.42	63.57	78	79	76	60	43
	CQ1.1.	Return on turnover (%NOP/Output)		0.17	0.35	0.43	0.08	0.39	0.28	0.27	3.74
	CQ1.1.	Traders actor number		1932	106	444	912	1219	2575	4613	10995
	CQ1.1.	Production		76929	21491	30233	99508	217311	347052	445472	865542
	CQ1.1.	IGS		58518	19385	28052	94169	201806	324027	401930	707131
	CQ1.1.	VA		18410	2107	2180	5339	15505	23024	43541	158409
	CQ1.1.	Wages		1020	259	278	1462	10807	12547	13826	39436
	CQ1.1.	Taxes		590	252	471	841	1178	2490	3332	12031
	CQ1.1.	Depr		0	6	11	35	85	131	137	479
	CQ1.1.	Land fees		0	0	0	0	0	0	0	0
	CQ1.1.	Net operating profit		16800	1590	1420	3001	3435	7856	26246	106464
	CQ1.1.	Contribution of VA into the direct VA in %		31	30	9.71	10	21	15	20	28
	CQ1.1.	Return on turnover (%NOP/Output)		21.84	7.40	4.70	3.02	1.58	2.26	5.89	12.30
	CQ1.1.	Processors actor number		1980	219	1744	2038	196	3978	6177	10997
	CQ1.1.	Production		61006	7741	49022	72489	12517	134028	202775	580539
	CQ1.1.	IGS		31645	6810	43024	66130	11963	121117	159572	422752
	CQ1.1.	VA		29361	931	5998	6359	554	12911	43203	157957
	CQ1.1.	Wages		10573	237	1478	1685	0	3163	13973	28204
	CQ1.1.	Taxes		193	8	52	82	11	145	346	7601
	CQ1.1.	Depr		434	74	465	530	0	995	1503	20151
	CQ1.1.	Land fees		0	0	0	0	0	0	0	0
	CQ1.1.	Net operating profit		18161	612	4003	4062	543	8608	27381	102001
	CQ1.1.	Contribution of VA into the direct VA in %		50.11	13.36	26.72	12	1	8	20	28
	CQ1.1.	Return on turnover (%NOP/Output)		29.77	7.91	8.17	5.60	4.34	6.42	13.50	17.57
		All actors		4328	774	3134	4548	3013	10695	15797	36514
		Production		84128	21142	46666	98052	122551	267269	372539	875940

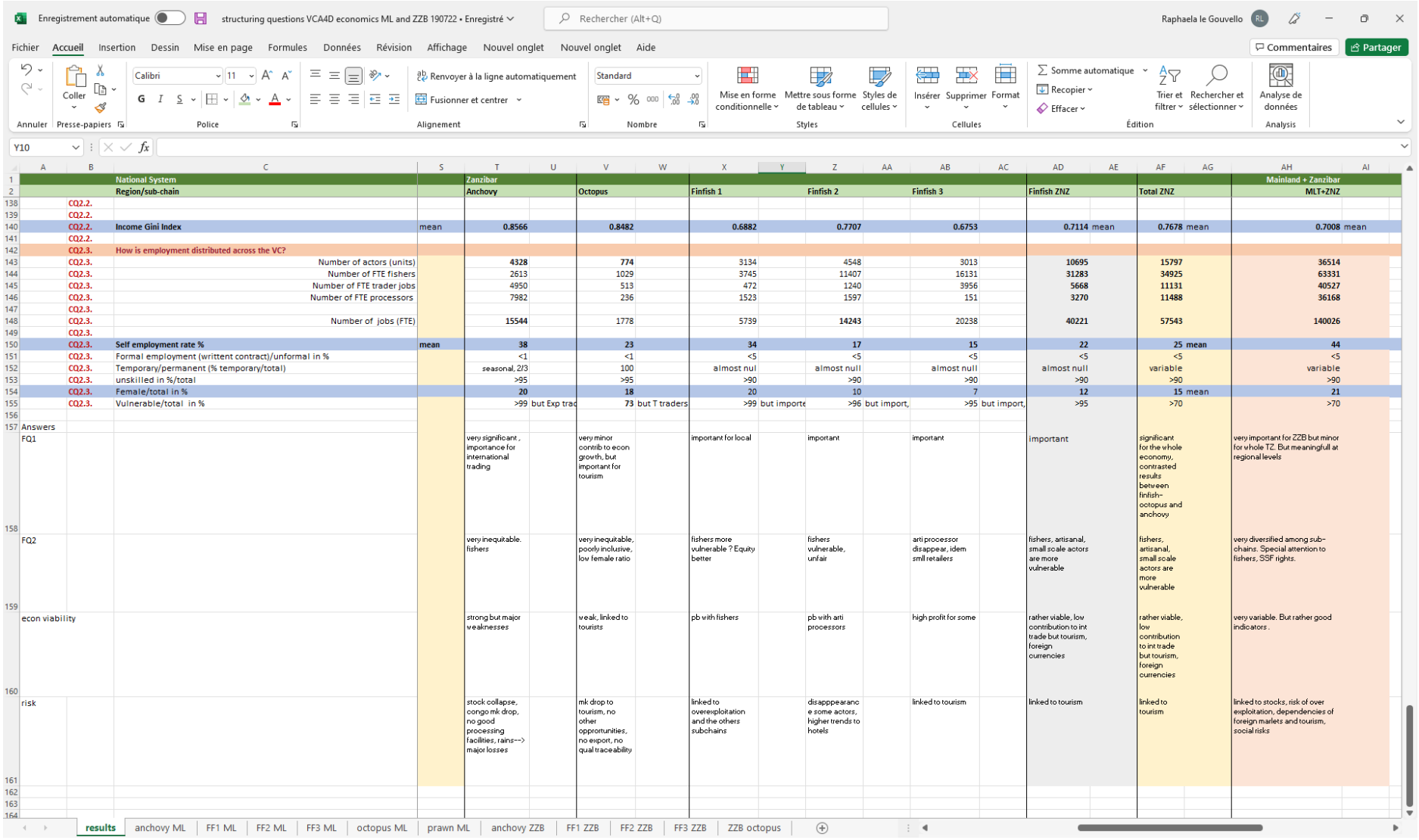
structuring questions VCA4D economics ML and ZZB 190722 • Enregistré

	A	B	C	T	U	V	X	Y	Z	AB	AD	AF	AH	AI
1			National System	Zanzibar									Mainland + Zanzibar	
2			Region/sub-chain	Anchovy		Octopus	Finfish 1		Finfish 2	Finfish 3	Finfish ZNZ	Total ZNZ	MLT+ZNZ	
48		CQ1.1.	Taxes	193		8	52		82	11	145	346	7601	
49		CQ1.1.	Depr	434		74	465		530	0	995	1503	20151	
50		CQ1.1.	Land fees	0		0	0		0	0	0	0	0	
51		CQ1.1.	Net operating profit	18161		612	4003		4062	543	8608	27381	102001	
52		CQ1.1.	Contribution of VA into the direct VA in %	50.11		13.36	26.72		12	1	8	20	28	
53		CQ1.1.	Return on turnover (%NOP/Output)	29.77		7.91	8.17		5.60	4.34	6.42	13.50	17.57	
54			All actors	4328		774	3134		4548	3013	10695	15797	36514	
55			Production	84128		21142	46666		98052	122551	267269	372539	875940	
56		CQ1.1.	IGS	25532		14171	24217		43905	47036	115158	154861	319467	
57		CQ1.1.	VA	58596		6971	22449		54147	75515	152111	217678	556473	
58		CQ1.1.	Wages	20005		4176	13859		39028	60853	113740	137921	255468	
59		CQ1.1.	Taxes	1051		300	661		1144	1410	3215	4566	25497	
60		CQ1.1.	Depr	1585		256	1128		1727	1247	4102	5943	28334	
61		CQ1.1.	Land fees	957		12	1289		5138	7734	14161	15130	25734	
62		CQ1.1.	Net operating profit	34998		2227	5512		7110	4271	16893	54118	221441	
63		CQ1.1.	check	100.00		100.00	100.00		100.00	100.00	100.00	100.00	100.00	
64		CQ1.1.	Fuel cost (% total IGS costs)	39.00		12.80	11.30		10.10	11.60	11.00	20.93	22.00	
65		CQ1.1.	Return on turnover (%NOP/Output)	41.60		10.53	11.81		7.25	3.49	6.32	14.53	25.28	
66		CQ 1.2.	What is the contribution of the VC to the GDP?											
67		CQ 1.2.	Total VC production	84128		21142	46666		98052	122551	267269	372539	875940	
68		CQ 1.2.	GDP	4147000		4147000	4147000		4147000	4147000	4147000	4147000	143788854	ML+ZZB
69		CQ 1.2.	Total VA direct	58596		6971	22449		54147	75515	152111	217678	556473	
70		CQ 1.2.	Total VA indirect	6349		2610	6827		15279	13315	35421	44380	104036	
71		CQ 1.2.	Total VA	64945		9581	29276		69426	88830	187532	262058	660509	
72		CQ 1.2.	Total Value Added in percentage of the GDP	1.6		0.2	0.7		1.7	2.1	4.5	6.3	0.46	
73		CQ 1.2.	Rate of Integration into the Economy: Total VA/Production of the VC in %	77.2		45.3	62.7		70.8	72.5	70.2	70.3	75.4	
74		CQ 1.2.	Driving Effect Ratio: Indirect VA/Direct VA	0.11		0.37	0.3		0.3	0.2	0.2	0.2	0.2	
75		CQ 1.2.												
76		CQ1.3.	What is the contribution of the VC to the agriculture sector GDP?											
77		CQ1.3.	Agriculture and fisheries GDP	875200		875200	875200		875200	875200	875200	875200	38067737	ML+ZZB
78		CQ1.3.	Direct Value Added in percentage of the agriculture sector GDP	7.42		1.09	3.35		7.93	10.15	21.43	29.94	1.74	
79		CQ1.3.	Direct Value Added (fishers) in percentage of the agriculture sector GDP	1.24		0.45	1.63		4.85	6.79	13.27	14.96	0.63	
80		CQ1.4.	What is the contribution of the VC to the public finances?											
81		CQ1.4.	Taxes	1051		300	661		1144	1410	3215	4566	25496	
82		CQ1.4.	Subsidies	0		0	0				0	0		
83		CQ1.4.	Benefits (tot taxes + tot OP of public companies)	1051		300	661		1144	1410	3215	4566	25496	
84		CQ1.4.	Cost (Subsidies + other public outlays)	0		0	0		0	0	0	0	0	
85		CQ1.4.	Public Funds Balance (benefits-costs)	1051		300	661		1144	1410	3215	4566	25496	
86		CQ1.4.												
87		CQ1.5.	What is the contribution of the VC to the balance of trade?											
88		CQ1.5.	VC Exports	53414	trade expor	0	0		0	0	0	53414	103970	
89		CQ1.5.	VC Total Imports	11407		2858	4581	but fish im	14774	9512	28867	43132	98414	
90		CQ1.5.	Impact of Balance of trade of the VC: VC exports - Total imports	42007		-2858	-4581		-14774	-9512	-28867	10282	5556	
91		CQ1.5.	FC outlays										0	
92		CQ1.5.	Return on Foreign Currency outlays (FC net balance/FC outlays)											
93		CQ1.5.	Total Imports/VC Production	0.14		0.14	0.10		0.15	0.08	0.11	0.12	0.11	
94		CQ1.5.												
95		CQ 1.6.	Is the VC viable in the international economy?											
96		CQ 1.6.	Domestic price of the product	84128		21142	88714		98052	247233	267269	372539	875940	
97		CQ 1.6.	International parity price of the product	84128		21142	88714		98052	247233	267269	372539	875940	
98		CQ 1.6.	Nominal Protection Coefficient (NPC)	1		1	1		1	1	1	1	1	
99	AFA	CQ 1.6.	Effective Protection Coefficient	1		1	1		1	1	1	1	1	
100	LabM	CQ 1.6.	Labor at market price	20730		4665	31076		43664	102630	177370	202765	332048	

results | anchovy ML | FF1 ML | FF2 ML | FF3 ML | octopus ML | prawn ML | anchovy ZZB | FF1 ZZB | FF2 ZZB | FF3 ZZB | ZZB octopus



				Zanzibar							Mainland + Zanzibar
		National System									
		Region/sub-chain		Anchovy	Octopus	Finfish 1	Finfish 2	Finfish 3	Finfish ZNZ	Total ZNZ	MLT+ZNZ
93	CQ1.5.	**Total Imports/VC Production**		**0.14**	**0.14**	**0.10**	0.15	**0.08**	**0.11**	**0.12**	**0.11**
94	CQ1.5.										
95	CQ 1.6.	**Is the VC viable in the international economy?**									
96	CQ 1.6.	Domestic price of the product		84128	21142	88714	98052	247233	**267269**	**372539**	**875940**
97	CQ 1.6.	International parity price of the product		84128	21142	88714	98052	247233	**267269**	**372539**	**875940**
98	CQ 1.6.	**Nominal Protection Coefficient (NPC)**		**1**	1	1	1	1	**1**	**1**	**1**
99	AFA CQ 1.6.	**Effective Protection Coefficient**		1	1	1	1	1	1	1	**1**
100	LabM CQ 1.6.	Labor at market price		20730	4665	31076	43664	102630	**177370**	**202765**	**332048**
101	CapM CQ 1.6.	Capital at market price		4869	1885	10635	17730	27171	**55536**	**62290**	**118303**
102	CQ 1.6.	Transfer		1051	**300**	661	1144	1410	**3215**	**4566**	**25495**
103	LabM+CapM CQ 1.6.	ble factors at market price (e.g. labour, capital, land, environmental goods)		24548	6250	41050	60250	128391	**229691**	**260489**	**424856**
104	OutM CQ 1.6.	Production at international price		84128	21142	88714	98052	247233	**267269**	**372539**	**875940**
105	InpM CQ 1.6.	Tradeable intermediate goods and services at int. Prices		22116	12007	25988	26919	52174	**105081**	**139204**	**268450**
106	CQ 1.6.	**Domestic Resource Ratio (DRC) (L-3/(L-1 - L-2)**		0.40	0.68	0.65	0.85	0.66	**1.42**	**1.12**	**0.70**
107	CQ 1.6.	Export price FOB in TZS/kg		4502	NA	NA	NA	NA			
108	CQ 1.6.	Export FOB price in US$/kg		3.03	NA	NA	NA	NA			
109	CQ 1.6.	Export FOB price in €/kg		2.68	NA	NA	NA	NA			
110	CQ 1.6.	Final consumer Export price in €/kg		6960	NA	NA	NA	NA			
111	CQ 1.6.	Main importing country		RDC	NA	NA	NA	NA			
112	CQ 1.6.	**hare % of the export price (FOB) in the final consumer price in the importing countr**		**64.7**	NA	NA	NA	NA			
113	CQ 1.6.										
114	**FQ2. Is this economic growth inclusive?**										
115	CQ2.1.	**How is income distributed across actors of the VC?**									
116	CQ2.1.	Total Fishers income (NOP) (absolute)		37	25	89	47	293	**429**	**491**	**12976**
117	CQ2.1.	**Total fishers income (NOP) of total VA (%)**		**0.1**	**1.1**	**1.6**	**1**	**7**	**3**	**1**	**6**
118	CQ2.1.	Total trader income (NOP) (absolute)		16800	1590	1420	3001	3435	7856	26246	106464
119	CQ2.1.	**Total trader income (NOP) of total VA (%)**		**48.0**	**71.4**	**25.8**	**42**	**80**	**47**	**48**	**48**
120	CQ2.1.	Total processor income (NOP)		18161	612	4003	4062	543	8608	27381	102001
121	CQ2.1.	**Total processor income (NOP) (%)**		**51.9**	**27.5**	**72.6**	**57**	**13**	**51**	**51**	**46**
122	CQ2.1.	**Income (NOP) distribution among actors**		**unfair**		weak	unfair				
123	CQ2.1.										
124	CQ2.1.	**Marginalized and vulnerable groups**		**fishers**	fishers, small processors	fishers, small processors	fishers, small processors				
125		Total number of fishers (on board)		**6657**	**1 346**	**3984**	**6292**	**6292**	**16569**	**24573**	**42700**
126		Average monthly income/fisher in MTZS		0.105	0.228	0.253	0.475	0.663	0.493	0.373	0.367
127		**Average monthly income/fisher in USD**		**46**	**99**	**110**	**207**	**288**	**214**	**162**	**159**
128		Average monthly income (NOP)/trader in MTZS		0.725	1.252	0.267	0.274	0.235	0.254	0.474	0.807
129		**Average monthly income (NOP)/trader in USD**		**315**	**545**	**116**	**119**	**102**	**111**	**206**	**351**
130		Average monthly income (NOP)/processor in MTZS		0.764	0.232	0.191	0.166	0.231	0.180	0.369	0.773
131		**Average monthly income (NOP)/processor in USD**		**332**	**101**	**83**	**72**	**100**	**78**	**161**	**336**
132	CQ2.1.										
133	CQ2.2.	**What is the impact of the governance systems on income distribution?**									
134	CQ2.2.	**Income distribution among actors**									
135	CQ2.2.	Final price (local end-user price) in TZS/kg		**6960**	**9000**	**6000**	**8000**	**11000**			
136	CQ2.2.	Fisher price in TZS/kg		**615**	**5000**	**2857**	**4500**	**6000**			
137	CQ2.2.	**Share of fisher gate price in final price %**	mean	**8.8**	**55.6**	**47.6**	**56**	**55**	**53** mean	**45** mean	**38** mean
138	CQ2.2.										
139	CQ2.2.										
140	CQ2.2.	**Income Gini Index**	mean	**0.8566**	**0.8482**	**0.6882**	**0.7707**	**0.6753**	**0.7114** mean	**0.7678** mean	**0.7008** mean
141	CQ2.2.										
142	CQ2.3.	**How is employment distributed across the VC?**									
143	CQ2.3.	Number of actors (units)		**4328**	**774**	3134	4548	3013	**10695**	**15797**	**36514**
144	CQ2.3.	Number of FTE fishers		2613	1029	3745	11407	16131	**31283**	**34925**	**63331**
145	CQ2.3.	Number of FTE trader jobs		4950	513	472	1240	3956	**5668**	**11131**	**40527**



Enregistrement automatique — structuring questions VCA4D economics ML and ZZB 190722 • Enregistré — Rechercher (Alt+Q) — Raphaela le Gouvello

Fichier | Accueil | Insertion | Dessin | Mise en page | Formules | Données | Révision | Affichage | Nouvel onglet | Nouvel onglet | Aide — Commentaires — Partager

Annuler | Presse-papiers | Police | Alignement | Nombre | Styles | Cellules | Édition | Analysis

Y10

				S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI
1			National System		Zanzibar														Mainland + Zanzibar	
2			Region/sub-chain		Anchovy		Octopus		Finfish 1		Finfish 2		Finfish 3		Finfish ZNZ		Total ZNZ		MLT+ZNZ	
138		CQ2.2.																		
139		CQ2.2.																		
140		CQ2.2.	Income Gini Index	mean	0.8566		0.8482		0.6882		0.7707		0.6753		0.7114	mean	0.7678	mean	0.7008	mean
141		CQ2.2.																		
142		CQ2.3.	How is employment distributed across the VC?																	
143		CQ2.3.	Number of actors (units)		4328		774		3134		4548		3013		10695		15797		36514	
144		CQ2.3.	Number of FTE fishers		2613		1029		3745		11407		16131		31283		34925		63331	
145		CQ2.3.	Number of FTE trader jobs		4950		513		472		1240		3956		5668		11131		40527	
146		CQ2.3.	Number of FTE processors		7982		236		1523		1597		151		3270		11488		36168	
147		CQ2.3.																		
148		CQ2.3.	Number of jobs (FTE)		15544		1778		5739		14243		20238		40221		57543		140026	
149		CQ2.3.																		
150		CQ2.3.	Self employment rate %	mean	38		23		34		17		15		22		25	mean	44	
151		CQ2.3.	Formal employment (writtent contract)/unformal in %		<1		<1		<5		<5		<5		<5		<5		<5	
152		CQ2.3.	Temporary/permanent (% temporary/total)		seasonal, 2/3		100		almost nul		almost null		almost null		almost null		variable		variable	
153		CQ2.3.	unskilled in %/total		>95		>95		>90		>90		>90		>90		>90		>90	
154		CQ2.3.	Female/total in %		20		18		20		10		7		12		15	mean	21	
155		CQ2.3.	Vulnerable/total in %		>99	but Exp trad	73	but T traders	>99	but importé	>96	but import,	>95	but import,	>95		>70		>70	
156																				
157	Answers																			
158	FQ1				very significant , importance for international trading		very minor contrib to econ growth, but important for tourism		important for local		important		important		important		significant for the whole economy, contrasted results between finfish-octopus and anchovy		very important for ZZB but minor for whole TZ. But meaningfull at regional levels	
159	FQ2				very inequitable. fishers		very inequitable, poorly inclusive, low female ratio		fishers more vulnerable ? Equity better		fishers vulnerable, unfair		arti processor disappear, idem smll retailers		fishers, artisanal, small scale actors are more vulnerable		fishers, artisanal, small scale actors are more vulnerable		very diversified among sub-chains. Special attention to fishers, SSF rights.	
160	econ viability				strong but major weaknesses		weak, linked to tourists		pb with fishers		pb with arti processors		high profit for some		rather viable, low contribution to int trade but tourism, foreign currencies		rather viable, low contribution to int trade but tourism, foreign currencies		very variable. But rather good indicators .	
161	risk				stock collapse, congo mk drop, no good processing facilities, rains--> major losses		mk drop to tourism, no other opprortunities, no export, no qual traceability		linked to overexploitation and the others subchains		disapppearance some actors, higher trends to hotels		linked to tourism		linked to tourism		linked to tourism		linked to stocks, risk of over exploitation, dependencies of foreign markets and tourism, social risks	
162																				
163																				
164																				

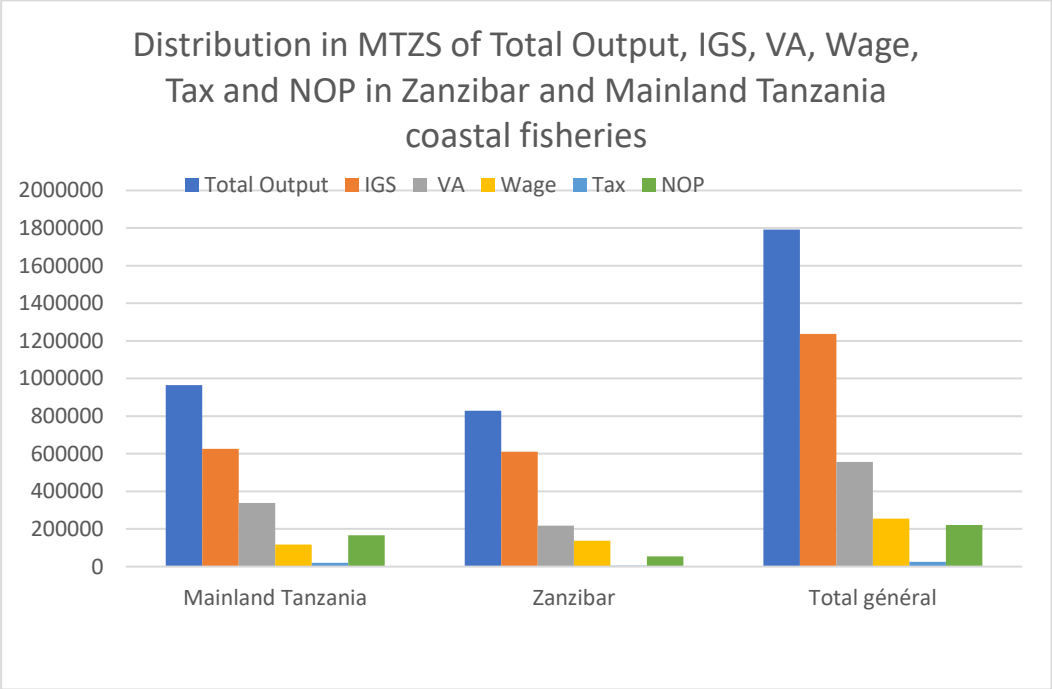
results | anchovy ML | FF1 ML | FF2 ML | FF3 ML | octopus ML | prawn ML | anchovy ZZB | FF1 ZZB | FF2 ZZB | FF3 ZZB | ZZB octopus

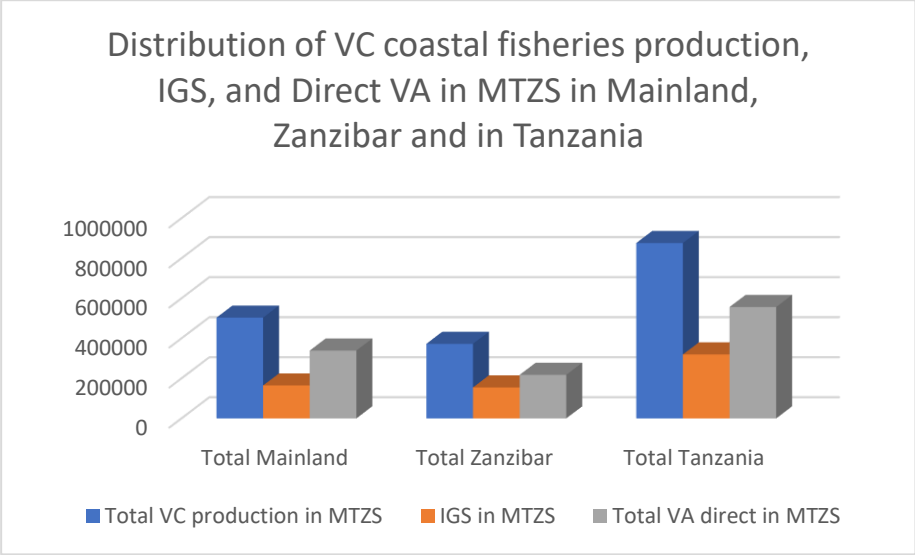
Section 3.2.2 Details of calculation

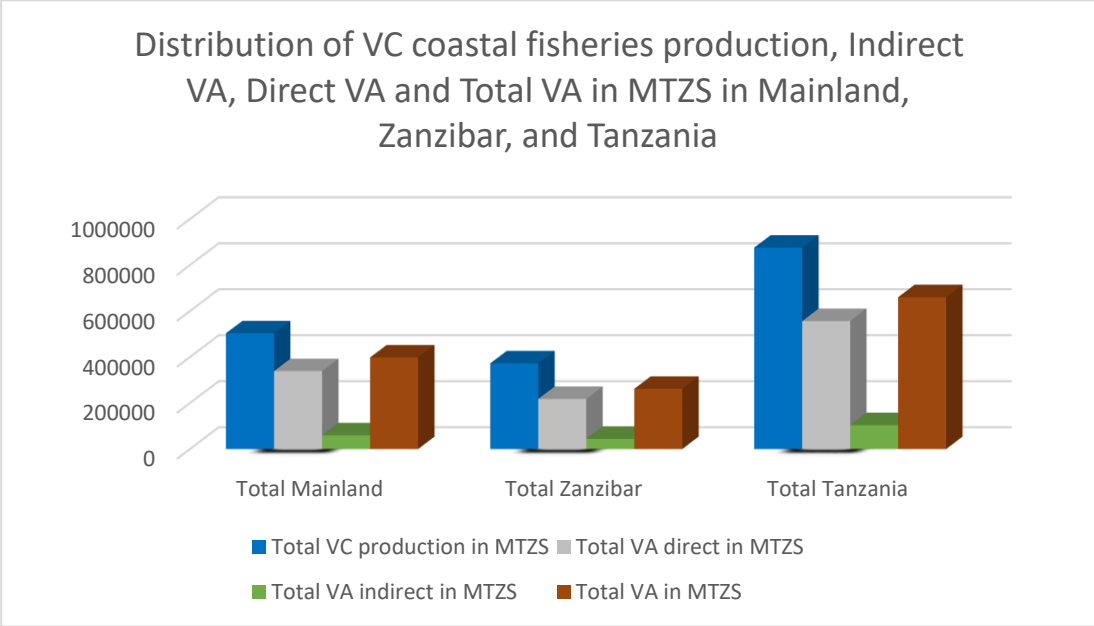
Relative variables	Total MLT	Total ZNZ	Total URT
Return on turnover (%) (NOP/VC production)	33.2	14.5	25.3
Driving Effect Ratio: Indirect VA/Direct VA in %	17.6	20.4	18.7
Rate of Integration into the Economy: Total VA/Production of the V	79.2	70.3	75.4
Total Value Added in percentage of the GDP	0.3	6.3	0.5
Direct Value Added (fishers) in percentage of the agriculture sectc	0.3	15.0	0.6
Direct Value Added in percentage of the agriculture sector GDP	1.1	29.9	1.7
Total exports/VC production in %	10.0	14.3	11.9
Total Imports/VC Production in %	11.0	11.6	11.2
Domestic Resource Ratio (DRC) in %	43.9	111.6	69.9

	Total Mainland	Total Zanzibar	Total Tanzania
Total VC production in MTZS	503401	372539	875940
IGS in MTZS	164606	154861	319467
Total VA direct in MTZS	338795	217678	556473
Total VA indirect in MTZS	59656	44380	104036
Total VA in MTZS	398451	262058	660509
Wages in MTZS	117547	137921	255468
Depreciation in MTZS	22391	5943	28334
Land fees in MTZS	10604	15130	25734
Taxes in MTZS	41860	9132	50992
Net operating profit (NOP) in MTZS	167323	54118	221441

Section 3.2.2 Results of disaggregated Total Output, IGS, VA..




Distribution of VC coastal fisheries production, IGS, and Direct VA in MTZS in Mainland, Zanzibar and in Tanzania
1000000
800000
600000
400000
200000
0
Total Mainland
Total Zanzibar
Total Tanzania
Total VC production in MTZS
IGS in MTZS
Total VA direct in MTZS


Distribution of VC coastal fisheries production, Indirect VA, Direct VA and Total VA in MTZS in Mainland, Zanzibar, and Tanzania
1000000
800000
600000
400000
200000
0
Total Mainland
Total Zanzibar
Total Tanzania
Total VC production in MTZS
Total VA direct in MTZS
Total VA indirect in MTZS
Total VA in MTZS

Section 3.2.2.1 Table Input/Output Use for the calculation of effects

Calculation of coefficients to integrate in AFA.

	Manufacture of machinery and equipment n.e.c. (C28)	Prod wood A02	Manufacture of wood and of products of wood and cork C16	Extraction of crude petroleum and natural gas	Manufacture of chemicals and chemical products	Manufacture of rubber and plastics products	Electricity, gas, steam and air conditioning	Manufacture of coke and refined petroleum products	Manufacture of paper and paper products	Manufacture of motor vehicles, trailers and semi-trailers	Air transport	Land transport and transport via pipelines	Water transport	Fishing and aquaculture	Repair and installation services of machinery and equipment	Wholesale trade services, except of motor vehicles and motorcycles	Warehousing and support activities for transportation
										C29			H50	A03	C33	G46	H52
													40	03	31	37	42
															A_MAINTENANC	A_MARKETING	
Total	236 830	466 077	127 281	123 654	728 860	416 652	677 163	140 605	111 820	77 298	139 936	3 981 897	206 748	255 072	146 503	1 507 956	1 058 139
Taxes less subsidies on products	14 646	8 300	2 169	10 057	22 745	3 794	7 953	656	4 390	11 018	13 882	579 488	14 350	18 848	3 926	21 826	9 998
Total	251 476	474 378	129 450	133 711	751 605	420 446	685 116	141 262	116 210	88 317	153 818	4 561 385	221 098	273 920	150 429	1 529 782	1 068 137
C.i.f./f.o.b. adjustments on imports																	
Direct purchases abroad by residents																	
Direct purchases in domestic markets by non-resi																	
Total intermediate consumption/final consumption at basic prices	251 476	474 378	129 450	133 711	751 605	420 446	685 116	141 262	116 210	88 317	153 818	4 561 385	221 098	273 920	150 429	1 529 782	1 068 137
Compensation of employees	1 904	11 836	22 598	4 197	37 968	13 844	365 718	2 836	5 836	4 699	35 447	1 284 763	24 504	27 090	1 444	368 473	41 892
Other taxes on production	724	1 224	4 174	1 381	3 446	332	4 112	2 217	1 312	492	1 091	31 037	1 338	1 377	52	832	4 033
Other subsidies on production																	
Consumption of fixed capital																	
Operating surplus, net	257 272	2 907 365	92 696	268 305	370 694	220 204	428 971	36 472	21 471	66 419	165 232	4 158 720	413 614	1 814 934	309 132	2 777 755	722 235
Value added at basic prices	259 900	2 920 425	119 468	273 884	412 108	234 381	798 801	41 525	28 619	71 610	201 770	5 474 520	439 457	1 843 401	310 628	3 147 060	768 160
Output at basic prices	511 377	3 394 802	248 918	407 595	1 163 712	654 827	1 483 917	182 787	144 830	159 926	355 588	10 035 905	660 555	2 117 321	461 057	4 676 842	1 836 297
Imports cif	1 548 725	693	145 470	7 320	1 508 804	554 348	4 626	3 334 205	173 800	1 372 040	227 867	1 510 003	359 349	92 877	127 629		68 041
Total supply	2 060 102	3 395 495	394 388	414 915	2 672 516	1 209 175	1 488 543	3 516 992	318 630	1 531 966	583 458	11 545 908	1 019 904	2 210 198	588 686	4 676 842	1 904 338
	machine	prod wood	manufac wood	crude P	chemicals	plastic	electricity	petrol	papers	motor	air transport	land transport	water transpor	fishing (bait)	repair	trade	support trade
IMP1	0.752	0.000	0.369	0.018	0.565	0.458	0.003	0.948	0.545	0.896	0.391	0.131	0.352	0.042	0.217	0.000	0.036
VA ajustée	274547	2928725	121636	283941	434852	238175	806755	42181	33010	82628	215652	6054008	453807	1862249	314554	3168886	778158
VA1	0.133	0.863	0.308	0.684	0.163	0.197	0.542	0.012	0.104	0.054	0.370	0.524	0.445	0.843	0.534	0.678	0.409
solde: 1-IMP1-VA1	0.115	0.137	0.323	0.298	0.273	0.345	0.455	0.040	0.351	0.050	0.240	0.345	0.203	0.115	0.249	0.322	0.556
Wag1	0.007	0.004	0.186	0.015	0.087	0.058	0.453	0.067	0.177	0.057	0.164	0.212	0.054	0.015	0.005	0.116	0.054
Tax1	0.056	0.003	0.052	0.040	0.060	0.017	0.015	0.068	0.173	0.139	0.069	0.101	0.035	0.011	0.013	0.007	0.018
Net1	0.937	0.993	0.762	0.945	0.852	0.925	0.532	0.865	0.650	0.804	0.766	0.687	0.911	0.975	0.983	0.877	0.928
	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
niv 2			prod wood			chemicals L18	crude P L5	crude P L5			petrol L17	petrol L17	petrol	petrol	chemicals	Warehouse C4	Food
amount			37415			175316	258784	101521			29526	1226669	28362	32 914	15 461	231 137	128 128
part niv 2			**0.294**			**0.421**	**0.382**	**0.722**			**0.211**	**0.308**	**0.137**	**0.129**	**0.106**	**0.153**	**0.121**
IMP1			0.000			0.565	0.018	0.018			0.948	0.948	0.948	0.948	0.565	0.036	
VA ajustée			2928725			434852	283941	283941			42181	42181	42181	42181	434852	778158	
VA1			0.863			0.163	0.684	0.684			0.012	0.012	0.012	0.012	0.163	0.409	
IGS1			0.137			0.273	0.298	0.298			0.040	0.040	0.040	0.040	0.273	0.556	
Wag1			0.004			0.087	0.015	0.015			0.067	0.067	0.067	0.067	0.087	0.054	
Tax1			0.003			0.060	0.040	0.040			0.068	0.068	0.068	0.068	0.060	0.018	
Net1			0.993			0.852	0.945	0.945			0.865	0.865	0.865	0.865	0.852	0.928	
VA2			0.254			0.068	0.262	0.494			0.003	0.004	0.002	0.002	0.017	0.063	
IGS2			0.040			0.115	0.114	0.215			0.008	0.012	0.005	0.005	0.029	0.085	
IMP2			0.000			0.238	0.007	0.013			0.200	0.292	0.130	0.122	0.060	0.005	
Wag2			0.001			0.037	0.006	0.011			0.014	0.021	0.009	0.009	0.009	0.008	
Tax2			0.001			0.025	0.015	0.029			0.014	0.021	0.009	0.009	0.006	0.003	
Net2			0.292			0.359	0.361	0.682			0.182	0.266	0.119	0.112	0.090	0.142	
	machine		manufac wood	crude P	chemicals	plastic	electricity	petrol	papers	motor	air transport	land transport	water/sea tran	fishing (bait)	A_MAINTENAN	A_Marketing	support trade
Exchangeable	1800201		274921	141 031	2 260 409	974 794	689 742	3 475 467	290 010	1 460 356	381 684	6 071 388	580 447	366 797	278 058	1 529 782	1 136 177
Capital	257996		96870	269 686	374 140	220 537	433 083	38 689	22 784	66 911	166 324	4 189 757	414 953	1 816 311	309 184	2 778 587	726 268
coeff exchangeables	0.874		0.697	0.340	0.846	0.806	0.463	0.988	0.910	0.953	0.654	0.526	0.569	0.166	0.472	0.327	0.597
coeff labour	0.001		0.057	0.010	0.014	0.011	0.246	0.001	0.018	0.003	0.061	0.111	0.024	0.012	0.002	0.079	0.022
coeff capital	0.125		0.246	0.650	0.140	0.182	0.291	0.011	0.072	0.044	0.285	0.363	0.407	0.822	0.525	0.594	0.381
coeff tax/subsidy	0.007		0.005	0.024	0.009	0.003	0.005	0.00019	0.014	0.007	0.024	0.050	0.014	0.009	0.007	0.005	0.005
coef tax /subsidy	0.008		0.008	0.077	0.010	0.004	0.012	0.000	0.015	0.008	0.038	0.106	0.025	0.054	0.014	0.014	0.009
	depr plant		depr wood boat			A_ACCESSORIES	A_ELECTRICITY	A_FUEL		depr engine	A_AIR TRANSPO	A_LAND TRANS	A_SEA TRANSPORT				
						depr gears											
			1.005	1.024	1.009	1.003	1.005	1.000	1.014	1.007	1.024	1.050	1.014	1.009	1.007	1.005	1.005

Section 3.2.2.1 Total effects for MLT- ZNZ and URT

Section 3.2.4.1 MLT total effects/sub-chain

Indicators	Anchovy MLT	Finfish MLT	Octopus MLT	Prawn MLT	Total MLT
Total VC production (MTZS)	53057	352755	65606	31983	503401
IGS (MTZS)	12345	131050	13176	8035	164606
Total VA direct (MTZS)	40712	221705	52430	23948	338795
Total VA indirect (MTZS)	2305	49434	4660	3257	59656
Total VA (MTZS)	43017	271139	57090	27205	398451
Wages (MTZS)	22142	85983	3220	6202	117547
Depreciation (MTZS)	550	19286	1499	1056	22391
Land fees (MTZS)	390	10214	0	0	10604
Taxes (MTZS)	981	10678	6284	2987	20930
Net operating profit (MTZS)	16649	95545	41426	13703	167323
VC Exports (MTZS)	8868	0	33084	8604	50556
VC Total Imports (MTZS)	7460	40405	4999	2418	55282
	Anchovy MLT	Finfish MLT	Octopus MLT	Prawn MLT	Total MLT
Return on turnover in %	31.38	27.09	63.14	42.85	33.24
Driving Effect Ratio: Indirect VA/Direct VA*100	5.66	22.30	8.89	13.60	17.61
Rate of Integration into the Economy: Total VA/Production of the VC	81.08	76.86	87.02	85.06	79.15
Total Value Added in percentage of the GDP	0.03	0.19	0.04	0.02	0.29
Direct Value Added (fishers) in percentage of the agriculture sector G	0.01	0.22	0.04	0.02	0.29
Direct Value Added in percentage of the agriculture sector GDP	0.12	0.73	0.15	0.07	1.07
Total exports/VC production in %	16.71	0.00	50.43	26.90	10.04
Total Imports/VC Production*100	14.06	11.45	7.62	7.56	10.98
Domestic Resource Ratio (DRC)*100	55.95	53.09	2.74	23.98	43.93
Share % of the export price (FOB) in the final consumer price in the ir	83.04	0.00	94.78	96.15	0.00
Total Imports/VC Production	0.14	0.11	0.08	0.08	0.11
Nominal Protection Coefficient (NPC)	1.00	1.00	1.00	1.00	1.00
Driving Effect Ratio: Indirect VA/Direct VA	0.06	0.22	0.09	0.14	0.18
Domestic Resource Ratio (DRC)	0.56	0.53	0.03	0.24	0.44

Section 3.2.4.2 ZNZ total effects/sub-chain

Indicator	Anchovy ZNZ	Finfish ZNZ	Octopus ZNZ	Total ZNZ
Total VC production (MTZS)	84128	267269	21142	372539
IGS (MTZS)	25532	115158	14171	154861
Total VA direct (MTZS)	58596	152111	6971	217678
Total VA indirect (MTZS)	6349	35421	2610	44380
Total VA (MTZS)	64945	187532	9581	262058
Wages (MTZS)	20005	113740	4176	137921
Depreciation (MTZS)	1585	4102	256	5943
Land fees (MTZS)	957	14161	12	15130
Taxes (MTZS)	1051	3215	300	4566
Net operating profit (MTZS)	34998	16893	2227	54118
VC Exports (MTZS)	53414	0	0	53414
VC Total Imports (MTZS)	11407	28867	2858	43132
	Anchovy ZNZ	Finfish ZNZ	Octopus ZNZ	Total ZNZ
Return on turnover in %	41.60	6.32	10.53	14.53
Driving Effect Ratio: Indirect VA/Direct	10.84	23.29	37.44	20.39
Rate of Integration into the Economy: T	77.20	70.17	45.32	70.34
Total Value Added in percentage of the	1.57	4.52	0.23	6.32
Direct Value Added (fishers) in percent	1.24	13.27	0.45	14.96
Direct Value Added in percentage of th	7.42	21.43	1.09	29.94
Total exports/VC production in %	63.49	0.00	0.00	14.34
Total Imports/VC Production*100	13.56	10.80	13.52	11.58
Domestic Resource Ratio (DRC)*100	39.59	141.62	68.42	111.64
Share % of the export price (FOB) in the	64.684			
Total Imports/VC Production	0.136	0.108	0.135	0.116
Nominal Protection Coefficient (NPC)	1.000	1.000	1.000	1.000
Driving Effect Ratio: Indirect VA/Direct	0.108	0.233	0.374	0.204
Domestic Resource Ratio (DRC)	0.396	1.416	0.684	1.116
Actor number (units)	4328	10695	774	15797
Annual volume of production in t	36200	31980	1439	69619

Section 3.2.4.3 Anchovy sub-chain in MLT and in ZNZ

Indicator	Anchovy ZNZ	Anchovy MLT
Actor number (units)	4328.00	3621.00
Annual volume of production in t	36200.00	15000.00
Total VC production (MTZS)	84127.69	53057.12
IGS (MTZS)	25531.69	12345.12
Total VA direct (MTZS)	58596.00	40712.00
Total VA indirect (MTZS)	6349.00	2305.00
Total VA (MTZS)	64945.00	43017.00
Wages (MTZS)	20005.00	22142.00
Depreciation (MTZS)	1585.00	550.00
Land fees (MTZS)	957.00	390.00
Taxes (MTZS)	1051.00	981.00
Net operating profit (MTZS)	34998.00	16649.00
VC Exports (MTZS)	53414.00	8868.00
VC Total Imports (MTZS)	11407.00	7460.00
	Anchovy ZNZ	Anchovy MLT
Return on turnover in %	41.60	31.38
Driving Effect Ratio: Indirect VA/Direct	10.84	5.66
Rate of Integration into the Economy: T	77.20	81.08
Total Value Added in percentage of the	1.57	0.03
Direct Value Added (fishers) in percen	1.24	0.01
Direct Value Added in percentage of th	7.42	0.12
Total exports/VC production in %	63.49	16.71
Total Imports/VC Production*100	13.56	14.06
Domestic Resource Ratio (DRC)*100	39.59	55.95
Domestic Resource Ratio (DRC) (L-3/(L-	0.40	0.56
Driving Effect Ratio: Indirect VA/Direct	0.11	0.06
Nominal Protection Coefficient (NPC)	1.00	1.00
Share % of the export price (FOB) in th	64.68	83.04
Total Imports/VC Production	0.14	0.14
Export price FOB in TZS/kg	4502.00	5730.00
Final consumer Export price in €/kg	6960.00	6900.00

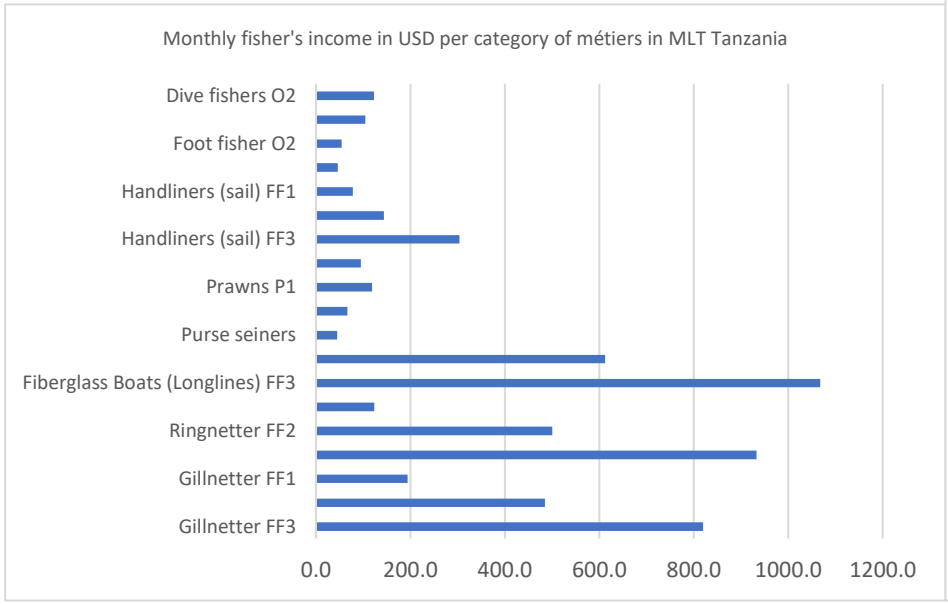
APPENDIX SECTION 4 INCLUSIVENESS

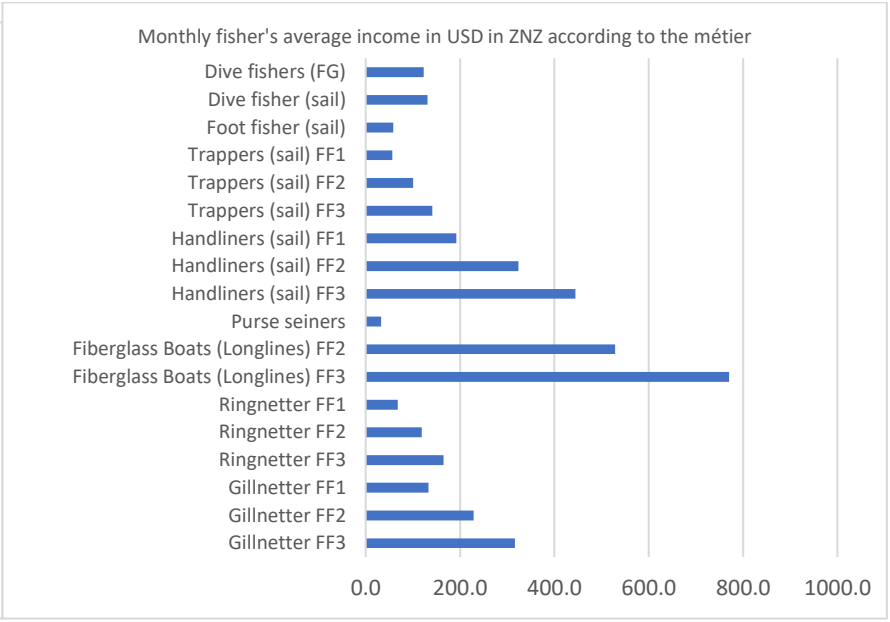
Section 4.1 Results of calculations of main indicators for Inclusiveness per sub-chain, and region

		National System	Mainland Tanzania								Zanzibar							Mainland + Zanzibar
		annual production (t)	2300	4250	15000	14750	17582	13000	45332	66882	36200	1439	7180	12400	12400	31980	69619	136501
		Sub-chain	Prawn ML	Octopus ML	Anchovy ML	Finfish 1 ML	Finfish 2 ML	Finfish 3 ML	Finfish ML	Total ML	Anchovy ZZB	Octopus ZZB	Finfish 1 ZZB	Finfish 2 ZZB	Finfish 3 ZZB	Finfish ZZB	Tot ZZB	
FQ2. Is this economic growth inclusive?																		
How is incon	CQ2.1.	Total Fishers income (NOP) in MTZS	342	11904	13	-2	101	127	226	12485	37	25	89	47	293	429	491	12976
	CQ2.1.	Total fishers income (NOP) of total VA (%)	2	29	0	0	0	1	0	7	0	1	2	1	7	3	1	6
	CQ2.1.	Total trader income (NOP) in MTZS	11504	11872	11610	9848	25837	9547	45232	80218	16800	1590	1420	3001	3435	7856	26246	106464
	CQ2.1.	Total trader income (NOP) of total VA (%)	84	29	70	22	73	58	47	48	48	71	26	42	80	47	48	48
	CQ2.1.	Total processor income in MTZS	1857	17650	5026	34019	9355	6713	50087	74620	18161	612	4003	4062	543	8608	27381	102001
	CQ2.1.	Total processor income (NOP) (%)	14	43	30	78	27	41	52	45	52	27	73	57	13	51	51	46
	CQ2.1.	Income (NOP) distribution among actors	unfair	unfair	unfair	better	better	better	better	unfair	unfair	unfair	weak	unfair	unfair	unfair	unfair	unfair
Marginalized	CQ2.1.		not clear	fishers	fishers	fishers	fishers	artisanal processor	fishers	fishers	fishers	fishers, small processors	fishers, small processors	fishers, small processors				
		Total number of fishers (on board)	1796	6586	2400	2204	2911	2230	7345	18128	6657	1346	3984	6292	6292	16569	24573	42700
		Average monthly income/fisher in MTZS	0.254	0.155	0.143	0.260	0.738	1.325	0.773	0.357	0.105	0.228	0.253	0.475	0.663	0.493	0.373	0.367
		Average monthly income/fisher in USD	111	67	62	113	321	576	336	155	46	99	110	207	288	214	162	159
		Average monthly income (NOP)/trader in MTZS	2.140	3.597	0.331	0.837	1.596	1.954	1.377	1.047	0.725	1.252	0.267	0.274	0.235	0.254	0.474	0.807
		Average monthly income (NOP)/trader in USD	931	1564	144	364	694	850	599	455	315	545	116	119	102	111	206	351
		Average monthly income (NOP)/processor in MTZS	14.814	114.075	0.763	1.548	0.535	0.685	1.017	1.290	0.764	0.232	0.191	0.166	0.231	0.180	0.369	0.773
		Average monthly income (NOP)/processor in USD	6441	49598	332	673	233	298	442	561	332	101	83	72	100	78	161	336
	CQ2.2.	**Income distribution among actors**																
	CQ2.2.	Final price (local end-user price) in TZS/kg	12800	9500	6500	6000	8000	11000			6960	9000	6000	8000	11000			
	CQ2.2.	Fisher price in TZS/kg	4500	4000	880	1429	2857	4500			615	5000	2857	4500	6000			
	CQ2.2.	Share of farm gate price in final price %	35.16	42.11	13.54	23.82	35.71	40.91	33.48	31.07	8.84	55.56	47.62	56.25	54.55	52.80	44.56	37.82
	CQ2.2.	Income Gini Index	0.6505	0.7900	0.5733	0.4430	0.5387	0.5830	0.5216	0.6338	0.8566	0.8482	0.6882	0.7707	0.6753	0.7114	0.7678	0.7008
	CQ2.3.	Number of actors (units)	1032	7016	3621	3373	3714	1961	9048	20717	4328	774	3134	4548	3013	10695	15797	36514
	CQ2.3.	Number of FTE fishers	1523	3396	1256	2356	8310	11565	22231	28406	2613	1029	3745	11407	16131	31283	34925	63331
	CQ2.3.	Number of FTE trader jobs	3385	3856	6847	3424	8831	3054	15309	29396	4950	513	472	1240	3956	5668	11131	40527
	CQ2.3.	Number of FTE processors	620	5151	2781	9845	3241	3043	16129	24681	7982	236	1523	1597	151	3270	11488	36168
	CQ2.3.	Number of jobs (FTE)	5529	12402	10883	15625	20383	17662	53669	82483	15544	1778	5739	14243	20238	40221	57543	140026
	CQ2.3.	Self employment rate %	87	59	42	90	57	28	58	62	38	23	34	17	15	22	25	44
	CQ2.3.	Formal employment (writtent contract)/unformal in %	30	41	<1	<1	<1	<1	<1	variable	<1	<1	<5	<5	<5	<5	<5	<5
	CQ2.3.	Temporary/permanent (% temporary/total)	almost 100	half	seasonal 2/3	almost null	almost null	almost null	almost null	variable	seasonal, 2/3	100	almost null	most null	most null	almost null	variable	variable
	CQ2.3.	unskilled in %/total (minimal)	95	95	95	95	95	95	95	95	95	95	90	90	90	90	90	90
	CQ2.3.	Female/total in %	22	17	26	76	29	12	39	26	20	18	20	10	7	12	15	21
	CQ2.3.	Vulnerable/total in %	>90	>60	>97	>99	>99	>99	>99	>60	>99	73	>99	>96	>95	>95	>70	>70

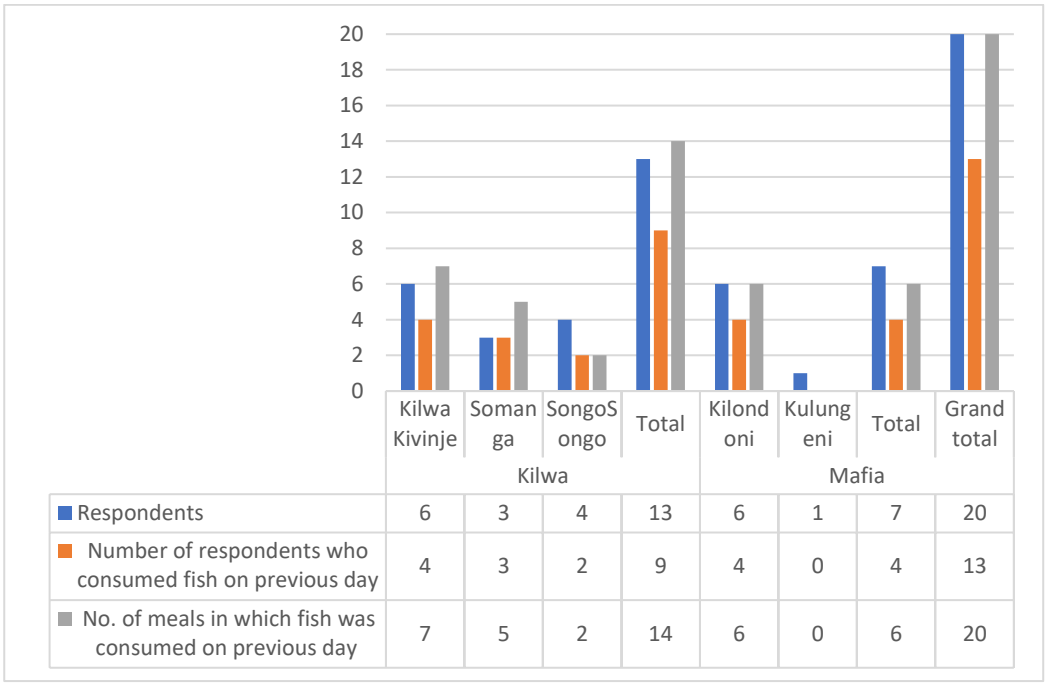
Mainland (MLT)	Actors	Anchovy MLT	Finfish 1 MLT	Finfish 2 MLT	Finfish 3 MLT	Finfish MLT	Octopus MLT	Prawn MLT	MLT
Average monthly income/fisher in USD	Fisher MLT	62	113	321	576	336	67	111	155
Average monthly income (NOP)/processor in USD	Processor MLT	332	673	233	298	442	49598	6441	561
Average monthly income (NOP)/trader in USD	Trader MLT	144	364	694	850	599	1564	931	455
Zanzibar (ZNZ)		Anchovy ZNZ	Finfish 1 ZNZ	Finfish 2 ZNZ	Finfish 3 ZNZ	Finfish ZNZ	Octopus ZNZ		ZNZ
Average monthly income/fisher in USD	Fisher ZNZ	46	110	207	288	214	99		162
Average monthly income (NOP)/processor in USD	Processor ZNZ	332	83	72	100	78	101		161
Average monthly income (NOP)/trader in USD	Trader ZNZ	315	116	119	102	111	545		206

Section 4.1.2.1 Fisher's income





APPENDIX SECTION 5 SOCIAL ANALYSIS



	Kilwa Kivinje	Somanga	SongoSongo	Total	Kilondoni	Kulungeni	Total	Grand total
	Kilwa				Mafia			
Respondents	6	3	4	13	6	1	7	20
Number of respondents who consumed fish on previous day	4	3	2	9	4	0	4	13
No. of meals in which fish was consumed on previous day	7	5	2	14	6	0	6	20

Figure.1 Fish consumption of previous day by 20 women in Kilwa and Mafia districts

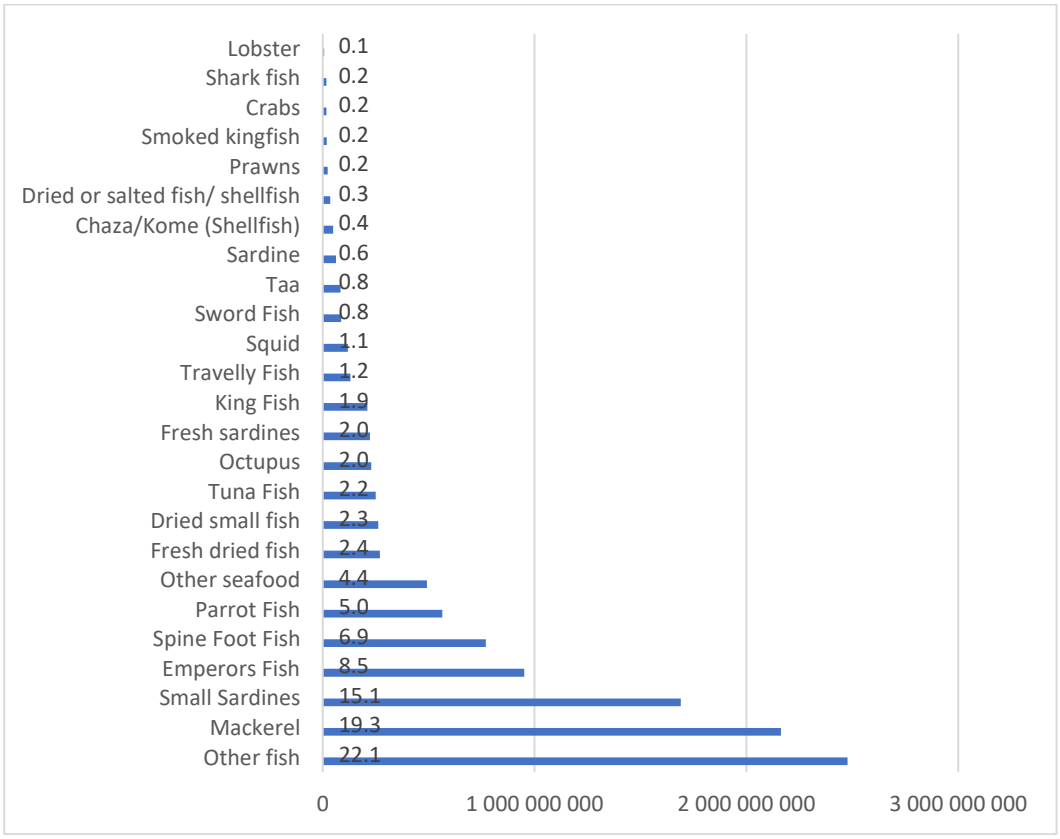


Figure.2 Monthly expenditure on fish in Zanzibar (figures on bars are % of total expenditure) Source: ZHBS (2020)

Table.1 Food consumption on previous days by twenty women in Kilwa and Mafia districts

Place	Participant	Morning	Middle of the day	Evening
Kilwa				
Kilwa Kivinje	K1	Not asked	Banana with coconut (from market);Dagaa (free from a relative)	Banana with coconut (from market);Dagaa (free from a relative)
	K2	Not asked	Beef and rice with coconut; plus mango and pawpaw(everythingfrom local market)	Beef and rice with coconut;Plus mango and pawpaw (everythingfromlocalmarket)
	K3	Not asked	Ugali ,vegetables, Tasi (rabbit fish, a reef fish) (all purchased)	Rice with coconut, Tasi (rabbit fish, a reef fish), vegetables(all purchased)
	K4	Not asked	Ripe banana and coconut (all purchased)	Ugali, banana, roasted fish, kachumbali (fresh tomato/onion) (all purchased)
	K5	Not asked	Ugali, beans, coconut (all purchased)	Rice, vegetables, amaranthus (all purchased)
	K6	Not asked	Rice and grouper fish	Rice and sahewa fish (tuna-like fish- Tsh 2,000 per piece)
Somanga	S1	Chipati, tea,(purchased)	Ugali (from a shop); Tasi fish (gift); Vegetable (amaranthus) (from her farm)	Rice (from her farm) Coconut; Kelea fish (like a catfish) (given for free)
	S2	Rabbit fish (Tasi) soup (given for free)	Ugali (bought); Kisamvu (cassava leaves) (free from neigbour)	Rice (bought); Kibua Fish (husband is a fisherman)
	S3	Chipati, tea , dagaa (free from neighbour)	Ugali (Bought); Matembele (sweet potato leaves)	Rice, Beans (Bought)
SongoSongo	SS1	Rice , tea (bought)	None	Rice, beef, amaranthus (Bought)
	SS2	Mandazi, tea (bought)	None	Kingfish (Nguru), Rice , kachumbali (fresh tomato/onion) (Bought)
	SS3	None	Pasta (Tambi), Tea	Rice, meat, (Bought)
	SS4	Mandazi, chicken soup, Tea (Bought)	Rabbit Fish (Tasi) , Chips (Bought)	Chips, juice (Bought)
Mafia				
Kulungeni	K1	Tea and bread (purchased)	None	Rice and beans (purchased)
	K2	Tea and mandazi (purchased)	Ugali and dagaa (purchased)	Rice and cassava leaves (kisamvu) (purchased)
	K3	Tea and banana (purchased)	Ugali (Purchased) and Amaranthus (from her garden)	Rice (Purchased) and Amaranthus
	K4	Tea and chipati (purchased)	Ugali and dagaa (purchased)	Rice and dagaa (purchased)
	K5	Tea and chipati (purchased)	Ugali and dagaa (purchased)	Rice and dagaa (purchased)
Kilindoni	K6	Tea and leftovers from previous day	Sweet potato and porridge (Uji Sembe) (Purchased)	Ugali and beans (Own?)
	K7	Tea and rice flour buns (vitumbua) (purchased)	Ugali and dagaa (purchased)	Beans and cassava leaves (kisamvu) (Purchased)

Table.2 Benefits/ Achievements reported by BMU Committee Members

BMU	Benefits/ Achievements
Kilwa Kivinje BMU committee	Main activity is to conserve fish resources and so the main benefit is the harvest.
Somanga BMU Committee Members	• Managed to start an auction in 2018. Selling at the water was difficult for women & disabled, but all now have access. • Minimise accidents caused by buying directly from boats. • Fishers get a higher price at the auction (although thieves steel fish at the auction) • BMU is contributing to mosques and school though the 2% fee collected from fishers. • Has a project to pay for health insurance for the poorest households. • Can restrict sales of illegal fish at auction e.g. if a fish has been speared. • Bought a water tank to help vendors and fishers at camp. Before one bucket of water was Tsh 500, but now it is Tsh 100. (Also built temporary toilet at camp) • BMU rescues fishers at sea. • BMU raises awareness on importance of illegal fishing; also about gender; about common diseases e.g. recently about COVID. • Meet with local politicians (village
Songo Songo BMU committee	• Founder of temporary reef closure. When reef is open the fishers get more income from octopus. • Contribute food to schools. Take patients to hospital in Kilwa Kivinge. • Rescue fishers
Kilindoni BMU Committee, Mafia	• Catch is getting bigger. • Size of fish is getting bigger due to closure.

Table.3 Benefits/ Achievements reported by Village Fishery Comittees

VFC	Benefits/ Achievements
Kaipwani Fishers Committee, Unguja Ukuu, Zanzibar This is under the village government (K.I. Retired Beach Recorder who had helped establish the Committee)	• The auction system was introduced 6 years ago through a participatory approach. The Beach recorder had the idea of the market and then donated the foundation stone. Menai Bay Conservation Area Authority then contributed, followed by the MP and the district government contributions. • A levy is collected on all fish sold through the auction. This is used to pay the broker /auctioneer, the cost of the market and a contribution to the Fishers Committee. Up to Tsh 8 million can be collected in 6 months. • The fish market/ auction building belongs to the Fishers Committee. • People within the Fishers Committee are responsible for enforcing conservation. E.g. when migrant fishers (dago) came they torched the migrant fishers' temporary structures. • Migratory fishers must pay Tsh 10,000 per season. They also need an official letter from where they come from. • One benefit is that dynamite fishing is no longer happening. Helped to sensitise communities regarding inappropriate practices (e.g. fish poisoning) and that if they used these practices they would be arrested immediately.
Matemwe VFC	• Raising awareness about illegal fishing • Reduce use of illegal fishing gear.
Chwaka VFC	• i)Reduced number of conflicts • ii)People are aware of illegal fishing which has led to reduction of illegal practices and more environmentally safe practices. • Quick exchange of information with Department of Fisheries. • ivAll fishers around the bay are united.
Nungwi VFC	• i)Good cooperation among members • ii)Illegal fishing has declined. • iii)Close follow up on infrastructure eg the market. • iv)Environment well conserved

Table.4 Community members comments on BMUs

Members	Members comments
Fish boilers, Kilwa Kivinje	They participate in BMU meetings. Kijoro was a leader in a former BMU. The current BMU is not meeting regularly. Illegal fishing is not a problem any more. People are now aware. Mangrove cutting has stopped. Kijoro reported that BMU revenue had been used to facilitate community projects such as schools and roads Asha reported – before there was illegal fishing, but now there are more fish and it has improved a little bit.
Crew members, Dagaa fishing vessel, Kilwa Kivinje	What are the benefits of BMU membership? –"Hakuna" There are none. For example, when their boat broke down they called the BMU, but there was no response.
Auctioneers, Kilwa Kivinje	BMU collects 2% from fishers and the auctioneers receive 0.5%. Payment from BMU can take more than 6 months.
Female Octopus fishers, Songo Songo	BMU leaders agree no one should go to the reef during closure, but when it is open they allow anyone from anywhere to go there. But it is we who have waited for 3 months during the closure. Previously, BMU involved fishers in closure and opening decisions and amount of harvest and income. But since they don't have meetings we don't know. They heard through the radio that fishers are catching a lot from the reef, but not from BMU. Opening of the reef is for personal reasons for BMU leaders. They receive Tsh 500 for each kg of octopus sold. They fear to have a meeting because they would have to explain what has happened to the money.
Songo Songo community leaders	From 2012 – Present – there is no dynamite fishing. The BMU has done a lot.

Table.5 Community members comments on VFCs

Members	Members comments
Matemwe fishers FGD	• No organization represents them. The VFC doesn't help in anyway. They send their problems to the VFC, but they don't help. 250 boats are to be given to fishers, but they have been told that they will not be receiving any. • They are not involved in deciding who is in the VFC
Chwaka fishers FGD	• We are frequently contacted by government which raises their expectations, but nothing has happened. • VFC? When it was new it was active, over time has become less active. They feel it is not reporting to responsible authorities. They don't get any feedback. They wonder if the VFC members are getting something from government. The VFC was established by government and they (the fishers) can only change the committee after a fixed time.
Nungwi fishers FGD	• They are consulted frequently about assistance from government. But when the assistance comes, they don't get any. For example, modern fishing equipment , fibre oat, large sized mesh net, equipment to help pull in the net. • They are ready to form groups. The problem is not forming groups, it is the distribution. The distribution is controlled by the Sheha who may give it to people who do not need it. • The Shehia committee is not trusted by the fishers or the community. The Sheha will choose close relatives. • There is more trust in the Village Elders Committee, the VFC, the Market Committee. Especially the Village Elders Committee.

Table.6 Trends in Health, health facilities & health services as perceived by coastal community members

Location	Comments
Mainland	
Kilwa Kivinje Women's focus group	People are advised to join BIMA (medical insurance) at a cost of Tsh 30,000 per family per year. At first, most families joined, but now many are not paying because service is not considered good. Have to purchase medicines. Considered better to buy medicines directly rather than go to hospital. Trends in health – Typhoid increased a lot; Malaria – not a lot; Diabetes – is going up; Urinary tract infection (UTI) – is increasing; Blood pressure – increasing; Heart disease – increasing. Considered to be related to lifestyle and income plus some inherited.
Somanga Women's focus group	Health and health services: health services are better than in the past. A health facility was built in 2020 with a contribution from the community and government Before there was more cholera, now there is less; Diabetes has increased; High blood pressure has increased; TB has decreased; UTI is high; Malaria is lower. Changes in health situation are not due to fishing, but to feeding habits. Most food in shops is fumigated.
Songo Songo women's focus group	Health: The gas company has built a health centre.
Songo Songo village leaders	The population of the community is 7,346. Health services have improved. In the past there were no doctors. Since 2014 there has been a clinic and since 2021 a laboratory technician. A Health Centre is under construction -paid for by the Pan Africa gas company. In the past diarrhea and chest infections were common Currently diabetes, BP , UTI and typhoid have increased. Changes in the health situation are attributed to increasing population & more interaction between people. In terms of health services affordability, people manage to access services.
Kilindoni, Mafia women's group FGD	Health and health services: When you go the hospital you must buy the medicines. The service is 50:50. Buildings are there, but need Tsh 2,000 to see the doctor. No one in group has BIMA medical insurance.
	Health depends on the environment in which a person lives. She lives in Kulungeni village. Malaria has gone down a lot because of the improved environment. UTI has gone down. Typhoid has gone down a lot. TB has gone down a lot. Diabetes has gone up a lot. BP has increased a little.
Matemwe Women's focus group	There is a hospital and a dispensary It is free to see a doctor. Medicine may or may need to be bought. In the past, medicine was free. Main health issues: BP, diabetes, body pain from seaweed activities, Dry mouth and scarring was a problem in the past , but not now. Changes in facilities and services linked to the government, not fishing.
Chwaka Women's focus group	Health services have improved. Many health centres. In the past they were relying on traditional medicines. Changes are not linked with fisheries. More common health problems are BP, asthma, diabetes. In the past BP was a rich person's health problem, but now it is more common. No link with fisheries.
Nungwi women's focus group	In the past there was no health centre and you had to go to town. Now there is a health centre nearby. Common health issues now – BP, diabetes has increased because they rely on cheapest rice - MAPEMBE. Some products from the sea are not so available e.g. octopus.

Table.7 Trends in Housing, water and electricity as perceived by coastal community members

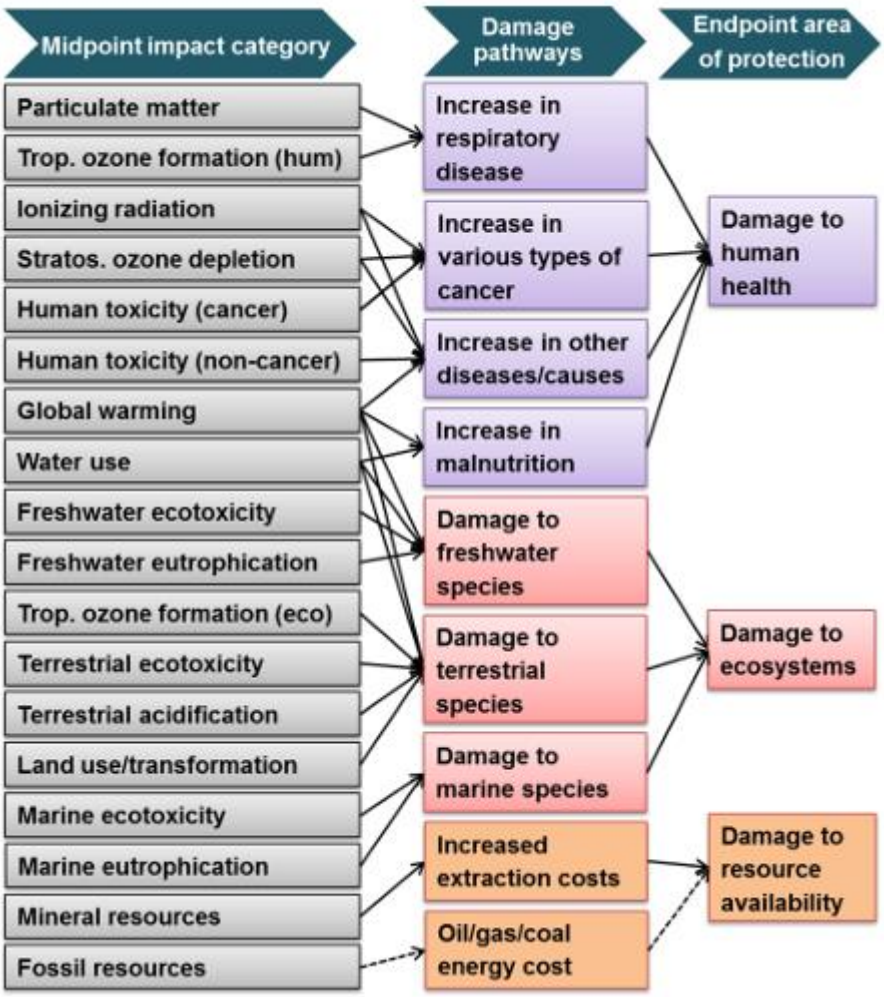
Location	Comments
Kilwa Kivinje Women's focus group	Housing is better compared to the 1990s – before mud brick, grass thatch, no electricity. Now there are more cement blocks, electricity, and water. Water – in the 1990s there were public pipes and some wells. Today there are public and private wells. Population has increased. Water is now a bit salty.
Somanga Women's focus group	Housing: There has been a big change in housing. Thatched roofs have been replaced by iron sheets. There is now electricity. Most of the changes in housing are due to fishing.
Songo Songo women's Focus Group	Housing: The standard of houses has improved Water supply: Cholera was a problem due to dirty water. Gas company has now facilitated water supply.
Songo Songo village leaders	Housing: There have been many changes in housing. Previously houses had a thatch roof and walls (known as "full suiti!"). Today there a block houses. Some houses even have a gate! Water quality & sanitation has improved. However, with increasing popn., amount of water is not enough.
Kilindoni, Mafia women's group FGD	For some, housing has improved while for others it had remained the same. Water was a problem..
Matemwe Women's focus group	In the past, houses were thatched but now they have iron sheets. In the past houses could be "full suiti" meaning everything was made from thatch. Water and sanitation – this has improved. Now have clean and safe water. Fishing income has made some contribution. Low amount and high prices
Chwaka Women's focus group	Housing has improved. This is linked to income from fishing. Water and sanitation – in the past they used wells, but now there is piped water. No connection with fisheries.
Nungwi women's focus group	Housing is better now. e.g iron sheets for roof. Water services are now in the village, whereas in the past they were outside. No link with fisheries

Table.8 Trends in Education as perceived by coastal community members

Location	Comments
Kilwa Kivinje Women's focus group	Education is better now than in 1990s. For example, standard of classrooms is better; number of teachers has increased; number of students going to secondary school has increased; Most /all? children of primary school age are going to school.
Somanga Women's focus group	Education: Quality of schools has improved. Percentage of children going to school has improved a lot. Most parents send their children to school. Fishing -related activities pay for school costs such as uniforms.
Songo Songo women's focus group	Education: Standards were not good. Most students finished end of primary school (ie did not go to secondary school). Most parents did not emphasise education. Today children go further Octopus fishing has contributed to improvements
Songo Songo village leaders	Education: In 1963-64 there was just one primary school class. There are now many primary school classes up to standard 7 and secondary school up to year 4. According to the chairman, 100% of children are going to secondary school. Some students have gone to university. Songo Songo is the number 1 (primary) school in Kilwa district and number 7 school in Lindi region. Income from fishing provides food and time for children to study. Parents contribute money to the school and this allows the pupils to be at the school from 6.00 am to 6.00 pm (when pupils are preparing for exams and this is why the pupils did so well compared to other schools in the district and region).
Kilindoni, Mafia women's group FGD	Education: Education is better now. Students pass more easily now to go to secondary school.
	Education has changed a lot.
Matemwe Women's focus group	Education was free in the past, but now have to pay. Need to go to a private school to get good education. In the past more boys were educated, but that was the long past. It was mainly madrassa for girls in the past. Now there are equal opportunities.

	They don't know of any link between fisheries and education. Investors may donate to a school or hospital.
Chwaka Women's focus group	In the past there was only madrassa. Secondary education was mainly for males. Now it is equal for boys and girls. Schools are closer now. No connection with fisheries.
Nungwi women's focus group	More access to education now. Sitting at desks today. Now it is a priority for both boys and girls. In the past more for boys. Fishing has both positive and negative link. On the positive side, money from fishing may be used to support child's education. On negative side, some students may be attracted to fishing because of market opportunities.

APPENDIX SECTION 6 ENVIRONMENTAL ANALYSIS



Supplementary Figure 6.1 Overview of the impact categories that are covered in the Recipe2016 methodology and their relation to the areas of protection. From Huijbregts et al., 2017

Supplementary Table 6.1 Impact assessment – Damage assessment referred to 1 ton of landed seafood - MLT

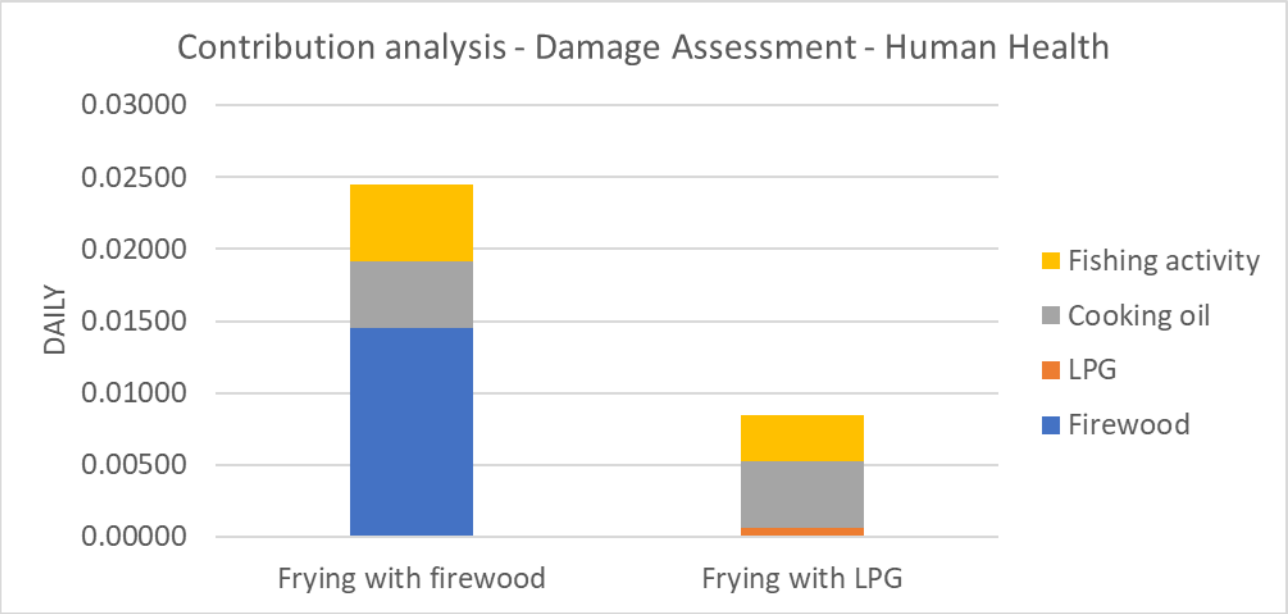
		Small Pelagic	Octopus				Finfish				Prawns
Damage category	**Unit**	**Purse-seine/motorized**	**Diver/motorized**	**Diver/non-motorized**	**Foot fisher/motorized**	**Foot fisher/non-motorized**	**Gillnet/Sail+ engine**	**Handline/non-motorized**	**Lonline/motorized**	**Ringnet/motorized**	**Gillnet/non-motorized**
Human health	DALY	1.62E-03	5.57E-03	2.28E-04	5.65E-03	5.49E-04	2.72E-03	1.38E-04	2.59E-03	4.26E-03	2.13E-04
Ecosystems	species.yr	3.37E-06	1.07E-05	6.36E-07	1.09E-05	2.38E-06	5.32E-06	7.66E-07	5.02E-06	8.28E-06	2.36E-06
Resources	USD2013	68.67	147.44	9.37	150.69	22.02	75.26	8.49	70.78	115.28	11.24

Supplementary Table 6.2 Impact assessment – Damage assessment referred to 1 ton of landed seafood - ZNZ

		Small Pelagic	Octopus			Finfish				
Damage category	**Unit**	**Purse-seine/motorized**	**Diver/motorized**	**Diver/non-motorized**	**Foot fisher/non-motorized**	**Gillnet/motorized**	**Handline/non-motorized**	**Lonline/motorized**	**Ringnet/motorized**	**Trap/non-motorized**
Human health	DALY	1.28E-03	3.02E-03	1.96E-05	2.64E-05	2.53E-03	5.43E-05	5.65E-03	4.32E-03	6.34E-05
Ecosystems	species.yr	2.58E-06	5.82E-06	2.30E-07	4.34E-07	5.06E-06	5.15E-07	1.09E-05	8.48E-06	9.24E-07
Resources	USD2013	44.64	80.54	0.84	0.70	67.20	2.52	151.58	122.28	2.39

Supplementary Table 6.3 Impact assessment – Damage assessment referred to 1 ton of processed seafood - MLT

Damage category	**Unit**	**Boiling and sun-drying**	**Drying with the experimental device**	**Frying with LPG**	**Frying with firewood**	**Chilling (collection centre)**	**Chilling (with ice)**	**Freezing (large-size plant)**	**Freezing (mid-size plant)**
Human health	DALY	0.00542	0.0042	0.00847	0.0245	0.004229	0.00242	0.0039	0.0069
Ecosystems	species.yr	1.31E-05	9.61E-06	4.20E-05	8.85E-05	9.14E-06	4.98E-06	7.93E-06	1.39E-05
Resources	USD2013	157.45	178	259.98	231	170.26	67.57	111	235



Supplementary Figure 6.2 Contribution analysis – Damage Assessment to the AoP Human Health – Frying processing with firewood and LPG – ML. The difference in the contribution of the fishing activity relies on the fact that only anchovies and anchovy-like species are fried using LPG, whereas anchovies, finfish and octopus can be fried using firewood.

Supplementary Table 6.4 Impact assessment – Damage assessment referred to 1 ton of processed seafood - ZNZ

Damage category	Unit	Boiling and sun-drying	Frying with firewood	Chilling (with ice)	Freezing (chest freezer)
Human health	DALY	0.0152	0.0117	0.002368	0.002533
Ecosystems	species.yr	4.24E-05	3.94E-05	4.92E-06	5.23E-06
Resources	USD2013	144.0605	147.94471	68.57639	69.80605

Supplementary Table 6.5 Impact assessment – Damage assessment referred to 1 ton of transported seafood – ML and ZZB

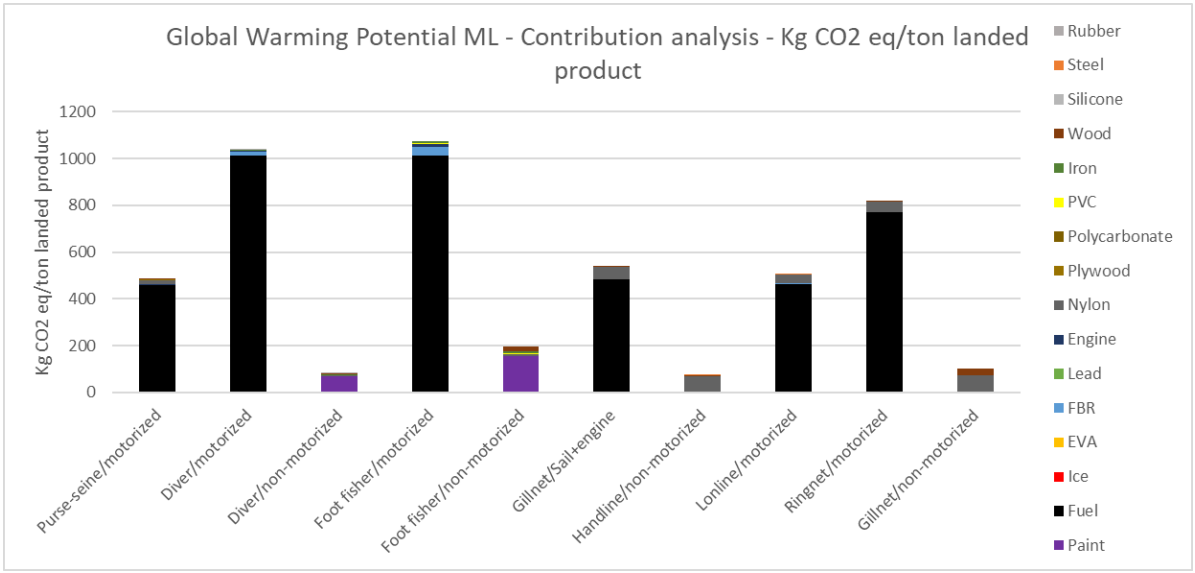
	Unit	MLT - Domestic transport	MLT - Chilled seafood transported to Zanzibar	MLT - Dried anchovies transported to Tunduma (Regional export)	MLT - Frozen seafood transported to Dar es Salaam harbour (EU export)	MLT - Frozen seafood transported to Tunduma (Regional export)	ZNZ - Dried anchovies transported to Tunduma (Regional export)
Human health	DALY	0.002569453	0.00123893	0.00591	0.00579	0.00601	0.0157
Ecosystems	species.yr	5.44E-06	5.15E-06	1.42E-05	1.23E-05	1.23E-05	4.36E-05
Resources	USD2013	79.509	94.441	189.299	184.617	210	176.907

Supplementary Table 6.6 Contribution analysis – Global Warming – Characterization. MLT fishing activities. Data refer to 1 ton of landed seafood.

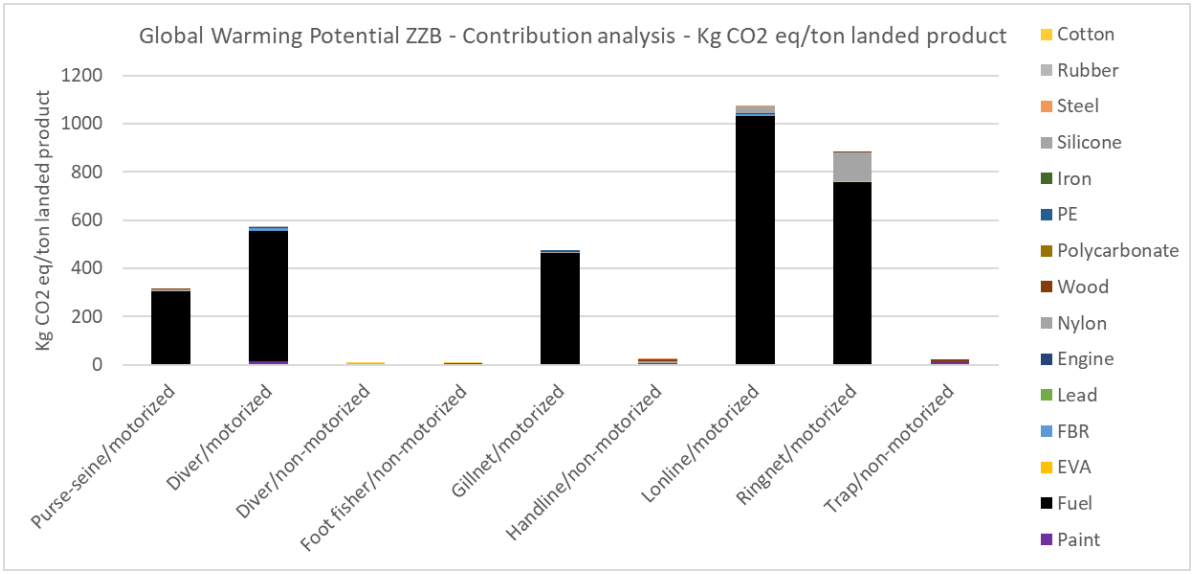
		Small Pelagic	Octopus				Finfish				Prawns
	Unit	Purse-seine/motorized	Diver/motorized	Diver/non-motorized	Foot fisher/motorized	Foot fisher/non-motorized	Gillnet/Sail+engine	Handline/non-motorized	Lonline/motorized	Ringnet/motorized	Gillnet/non-motorized
Total	Kg CO2 eq	482.87	1040.14	83.57	1074.98	198.02	537.90	75.82	505.23	814.57	101.69
Paint	Kg CO2 eq	1.73	0.00	69.17	0.00	153.71	0.00	0.00	0.00	0.00	0.00
Fuel	Kg CO2 eq	458.87	1014.36	0.00	1012.99	0.00	483.36	0.00	462.25	771.65	0.00
Ice	Kg CO2 eq	0.00	0.00	0.00	0.00	0.00	0.76	0.00	0.00	0.00	0.00
EVA	Kg CO2 eq	0.32	0.00	0.00	0.00	0.00	0.45	0.00	0.00	1.04	0.00
FBR	Kg CO2 eq	0.00	15.33	0.00	37.46	0.00	0.00	0.00	4.86	0.00	0.00
Lead	Kg CO2 eq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Engine	Kg CO2 eq	0.48	4.37	0.00	10.68	0.00	0.89	0.00	1.46	0.11	0.00
Nylon	Kg CO2 eq	20.38	0.00	4.32	0.00	9.59	51.96	67.84	35.71	41.39	73.39
Plywood	Kg CO2 eq	0.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Polycarbonate	Kg CO2 eq	0.00	1.02	1.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PVC	Kg CO2 eq	0.00	0.00	0.00	5.56	5.56	0.00	0.00	0.00	0.00	0.00
Iron	Kg CO2 eq	0.00	3.39	3.73	8.29	8.29	0.00	0.00	0.00	0.00	0.00
Wood	Kg CO2 eq	0.34	0.00	3.40	0.00	20.88	0.46	6.67	0.00	0.38	28.30
Silicone	Kg CO2 eq	0.00	0.39	0.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Steel	Kg CO2 eq	0.00	0.00	0.00	0.00	0.00	0.00	1.31	0.95	0.00	0.00
Rubber	Kg CO2 eq	0.00	1.28	1.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Supplementary Table 6.7 Contribution analysis – Global Warming – Characterization. ZNZ fishing activities. Data refer to 1 ton of landed seafood.

		Small Pelagic	Octopus			Finfish				
	Unit	Purse-seine/motorized	Diver/motorized	Diver/non-motorized	Foot fisher/non-motorized	Gillnet/motorized	Handline/non-motorized	Lonline/motorized	Ringnet/motorized	Trap/non-motorized
Total	Kg CO2 eq	312.79	571.31	6.91	7.89	472.19	22.77	1071.26	880.39	21.82
Paint	Kg CO2 eq	1.39	13.30	0.00	0.00	0.00	6.18	2.88	0.89	9.61
Fuel	Kg CO2 eq	303.43	543.24	0.00	0.00	462.25	0.00	1027.22	758.56	0.00
EVA	Kg CO2 eq	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.67	0.00
FBR	Kg CO2 eq	0.00	8.81	0.00	0.00	0.00	0.00	9.93	0.00	0.00
Lead	Kg CO2 eq	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00
Engine	Kg CO2 eq	0.55	4.62	0.00	0.00	1.60	0.00	2.00	1.23	0.00
Nylon	Kg CO2 eq	6.44	0.00	0.00	0.00	4.97	10.48	29.14	118.44	1.44
Wood	Kg CO2 eq	0.53	0.00	2.83	5.66	2.57	6.06	0.00	0.58	10.78
Polycarbonate	Kg CO2 eq	0.00	0.43	1.12	0.00	0.00	0.00	0.00	0.00	0.00
PE	Kg CO2 eq	0.00	0.00	0.00	0.00	0.80	0.00	0.00	0.00	0.00
Iron	Kg CO2 eq	0.00	0.20	0.52	1.04	0.00	0.00	0.00	0.00	0.00
Silicone	Kg CO2 eq	0.00	0.17	0.43	0.00	0.00	0.00	0.00	0.00	0.00
Steel	Kg CO2 eq	0.00	0.00	0.00	0.00	0.00	0.05	0.09	0.00	0.00
Rubber	Kg CO2 eq	0.00	0.54	1.41	0.00	0.00	0.00	0.00	0.00	0.00
Cotton	Kg CO2 eq	0.00	0.00	0.60	1.19	0.00	0.00	0.00	0.00	0.00



Supplementary Figure 6.3 Contribution analysis – Global Warming Potential – MLT fisheries activities. Data are referred to 1 ton of landed product.



Supplementary Figure 6.4 Contribution analysis – Global Warming Potential – ZNZ fisheries activities. Data are referred to 1 ton of landed product.

Supplementary Table 6.8 Contribution analysis – Global Warming – Characterization. MLT processing activities. Data refer to 1 ton of processed seafood.

	Unit	Boiling and sun-drying	Drying with the experimental device	Frying with LPG	Frying with firewood	Chilling (collection centre)	Chilling (with ice)	Freezing (large-size plant)	Freezing (mid-size plant)
Total	Kg CO2 eq	1960.07	1574.34	3960.23	10340.10	1277.47	492.08	796.45	1715.66
Fishing activity	Kg CO2 eq	988.21	1005.99	965.75	1076.02	651.02	481.40	758.27	1149.48
Aluminium	Kg CO2 eq	10.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Firewood	Kg CO2 eq	916.94	0.00	0.00	6724.42	0.00	0.00	0.00	0.00
Charcoal	Kg CO2 eq	0.00	307.08	0.00	0.00	0.00	0.00	0.00	0.00
LPG	Kg CO2 eq	0.00	0.00	458.24	0.00	0.00	0.00	0.00	0.00
Cooking oil	Kg CO2 eq	0.00	0.00	2536.24	2539.30	0.00	0.00	0.00	0.00
Ice	Kg CO2 eq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PE	Kg CO2 eq	44.10	0.00	0.00	0.00	0.00	0.00	2.28	10.71
Cardboard	Kg CO2 eq	0.00	0.00	0.00	0.00	0.00	0.00	3.66	9.98
Fuel	Kg CO2 eq	0.00	0.00	0.00	0.00	0.00	0.00	4.62	11.62
Electricity	Kg CO2 eq	0.00	261.27	0.00	0.36	626.45	10.69	27.62	533.87

Supplementary Table 6.9 Contribution analysis – Global Warming – Characterization. ZNZ processing activities. Data refer to 1 ton of processed seafood.

	Unit	Boiling and sun-drying	Frying with firewood	Chilling (with ice)	Freezing (chest freezer)
Total	Kg CO2 eq	6286.34	4522.08	494.00	499.05
Fishing activity	Kg CO2 eq	830.34	821.90	453.04	498.37
Aluminium	Kg CO2 eq	10.53	0.00	0.00	0.00
Firewood	Kg CO2 eq	5444.61	2676.86	0.00	0.00
Electricity	Kg CO2 eq	0.00	0.00	40.96	0.68
Ice	Kg CO2 eq	0.00	0.00	0.00	0.00
Salt	Kg CO2 eq	0.86	0.00	0.00	0.00
Cooking oil	Kg CO2 eq	0.00	1023.32	0.00	0.00

Supplementary Table 6.10 Marine parks and reserves in Tanzania mainland (Machumu, 2021)

Marine parks and reserves	Declaration year	Type	Area
Mafia Island Marine Park (MIMP)	1995	Multiple-use area	822 km^2
Mnazi Bay Ruvuma Estuary Marine Park (MBREMP)	2000	Multiple-use area	650 km^2
Tanga Coelacanth Marine Park (TACMP)	2009	Multiple-use area	522 km^2
Bongoyo Island Marine Reserve	1975	No-take area	9.15 km^2
Mbudya Island Marine Reserve	1975	No-take area	2.13 km^2
Mbudya Island Marine Reserve	1975	No-take area	14.22 km^2
Fungu-Yasini Marine Reserve	1975	No-take area	22.90 km^2
Makatube Island Marine Reserve	2007	No-take area	7.78 km^2
Sinda Island Marine Reserve	2007	No-take area	1.80 km^2
Kendwa Island Marine Reserve	2007	No-take area	5.30 km^2
Ulenge Island Marine Reserve	2010	No-take area	3.16 km^2
Mwewe Island Marine Reserve	2010	No-take area	0.40 km^2
Kirui Island Marine Reserve	2010	No-take area	36.10 km^2
Kwale Island Marine Reserve	2010	No-take area	12.13 km^2
Maziwe Island (submerged island) Marine Reserve	1981	No-take area	4.50 km^2
Shungumbili Island Marine Reserve	2007	No-take area	4.20 km^2
Nyororo Island Marine Reserve	2007	No-take area	21.00 km^2
Mbarakuni Island Marine Reserve	2007	No-take area	3.80 km^2
APPROX. TOTAL MPA AREA			**2142.57 km^2**
Other coastal protected areas (National parks and forest reserves)			
Saadani National Park	2005	No-take area	1062 km^2
Mangrove Forest Reserves	1957	Multiple-use area	1250 km^2

Supplementary Table 6.11 Marine Protection Areas in Zanzibar (IUCN, 2020; Yahya, 2021)

Name (MPA)	Declaration year	Type	Area
Pemba Channel Conservation Area (PECCA)	2005	Multiple-use area	825.8 km^2
Mnemba Island Marine Conservation Area (MIMCA)	2002	Multiple-use area	337.3 km^2
Tumbatu Marine Conservation Area (TUMCA)	2014	Multiple-use area	162.9 km^2
Menai Bay Conservation Area (MBCA)	1997	Multiple-use area	717.5 km^2
Chumbe Island Coral Park (CHICOP)	1994	No-take area	0.55 km^2
Changuu-Bawe Marine Conservation Area (CHABAMCA)	2014	Multiple-use area	118.2 km^2
APPROX. TOTAL MPA AREA			**2162.25 km^2**
Other coastal protected areas (National parks and forest reserves)			
Jozani – Chwaka Bay National Park	1995		56 km^2 (+ 86 km^2 buffer)
Ngezi-Vumawimbi Nature Forest Reserve	1959		29.9 km^2
Kiwengwa Controlled Area (KCA)	2002		34.1 km^2

The basis for the semi-structured interviews for the fishing activities and the landing sites operations are given below. For the questionnaires related to the small processors (driers, friers, chillers), processing plants, please refer to "Questions uses in ZNZ" in the appendix of the Economic Section

ANCHOVIES FISHING ACTIVITY – QUESTIONS (referred to the whole year, ref 2019)

1. Fishing days/year + "high" and "low" season
2. Annual catch (ton) (individual and/or per group of fishers)
3. Weight of 1 bucket of fresh anchovies (weight of the empty and full bucket)
4. Selling price (seasonal variation?)

5. Lead boat: material, dimension, weight, lifespan
6. Lead boat engine: material, weight, lifespan, fuel consumption
7. Dingi boats: number, material, dimension, weight, lifespan
8. Dingi boat engine: material, weight, lifespan, fuel consumption
9. Antifouling paint for lead and dingi boats: amount, type
10. Do you use generators for the light? Fuel consumption, lifespan, weight, material

11. Gear type (purse seine): number, dimension, weight of the different materials, lifespan
12. Ropes: material, number, measures, lifespan
13. Floats: material, number, lifespan

14. Do you use ice? How much/trip? From where?
15. Do you use insulated boxes? How many? Lifespan?
16. Kerosene for lamps? How much/trip?
17. Packaging: material, weight, lifespan

ANCHOVIES LANDING SITE OPERATIONS – QUESTIONS (referred to the whole year, ref 2019)

1) Annual landed fresh anchovies (ton or number of buckets) (purchased by one middleman/woman)
2) Purchasing price of fresh anchovies
3) Weight of fresh anchovies bucket (full and empty)
4) Weight loss post-processing

5) % (or ton/buckets) of anchovies to be sold FRESH and where do these fresh anchovies go?
6) % (or ton/buckets) of anchovies to be sold PROCESSED
7) OF THIS %: % boiled + dried? And % only dried?
8) % of processed anchovies for the Congolese buyers
9) % processed anchovies for the local market
10) From 10 buckets of fresh anchovies, how many buckets of dried anchovies and how many buckets of dust do you get? (<u>better to weigh also the dust bucket!</u>)

11) How many people (carriers, boilers…) are involved with one middleman/woman
12) Number of boiling pans used, material and lifespan
13) Number of drying racks or tarpaulin covers used and material, dimension, lifespan
14) Use of buckets: are they different from those used for transporting the fresh anchovies? Material, weight, lifespan, number
15) How much salt do you use/year?
16) How much firewood?
17) How much waste it is produce from the processing? Plastic? How is this disposed?

FINFISH FISHING ACTIVITY – QUESTIONS (referred to the whole year, ref 2019)

1. Fishing days/year
2. Annual catch (ton) (individual and/or per group of fishers)
3. Selling price (seasonal variation?)
4. WHAT IS THE TYPICAL FISHING METHOD? ES: boat+engine+longline?

5. Boat: material, weight, lifespan, dimension
6. Sail: material, weight, lifespan, dimension
7. Antifouling paint used?
8. Engine (if used): HP, material, weight, lifespan,
9. Fuel consumptio/year
10. Longline: weights of the materials (nylon, lead), lifespan
11. Gillnet or Ringnet: materials and their weights, lifespan
12. Ropes: measures, lifespan, material
13. Hooks: material, number, lifespan, weight
14. Floats: material, dimensions, lifespan
15. Other equipment used for fishing (): material, lifespan
16. Do you use ice? How much per trip?
17. Do you use insulated boxes? How many, lifespan
18. Packaging: material, weight, lifespan

FINFISH FISH LANDING SITE OPERATIONS – QUESTIONS (referred to the whole year, ref 2019)

1) Annual landed PELAGIC FISH (ton, individual or per group of fishers)
2) Purchasing price, selling price
3) % PELAGIC FISH to be sold fresh
4) % PELAGIC FISH to be sent to the processing factory
5) % PELAGIC FISH sold for a different purpose
6) Weight loss post-processing

OCTOPUS FISHING ACTIVITY – QUESTIONS (referred to the whole year, ref 2019)

1. Fishing days/year
2. Annual catch (ton) (individual and/or per group of fishers)
3. Selling price (seasonal variation?)
4. % foot fishers vs divers

5. The transport boat used to reach the fishing site is used by how many fishers?
6. Transport boat: dimension, material, weight, lifespan
7. Antifouling paint used?
8. Engine: HP, material, weight, lifespan, fuel consumption
9. Iron stick for fishing: weight, number, lifespan
10. Other equipment used for fishing (masks, shoes…): material, lifespan
11. Do you use ice? How much per trip?
12. Do you use insulated boxes? How many, lifespan
13. Packaging: material, weight, lifespan

OCTOPUS LANDING SITE OPERATIONS – QUESTIONS (referred to the whole year, ref 2019)

7) Annual landed octopus (ton, individual or per group of fishers)
8) Purchasing price, selling price
9) % octopus to be sold fresh
10) % octopus to be sundried
11) % octopus to be sent to the processing factory
12) Weight loss post-processing

PRAWNS FISHING ACTIVITY – QUESTIONS (referred to the whole year, ref 2019)

1. Fishing days/year
2. Annual catch (ton) (individual and/or per group of fishers)
3. Selling price (seasonal variation?)
4. Is the canoe+sail+gillnet the typical fishing method?

5. Boat: material, weight, lifespan, dimension
6. Sail: material, weigh, lifespan, dimension
7. Antifouling paint used?
8. Engine (if used): HP, material, weight, lifespan, fuel consumption
9. Gillnet: weights of the materials (nylon, lead), lifespan
10. Ropes: measures, lifespan, material
11. Floats: material, dimensions, lifespan
12. Other equipment used for fishing (): material, lifespan
13. Do you use ice? How much per trip?
14. Do you use insulated boxes? How many, lifespan
15. Packaging: material, weight, lifespan

PRAWNS LANDING SITE OPERATIONS – QUESTIONS (referred to the whole year, ref 2019)

13) Annual landed PRAWNS (ton, individual or per group of fishers)
14) Purchasing price, selling price
15) % PRAWNS to be sold fresh
16) % PRAWNS to be sent to the processing factory
17) % PRAWNS sold for a different purpose
18) Weight loss post-processing

OCTOPUS, PRAWNS, FINFISH PROCESSING FACILITY – QUESTIONS (referred to the whole year, ref 2019)

1) Amount fresh octopus entering the plant/year + purchasing price
2) Amount fresh WILD prawns entering the plant/year + purchasing price
3) Amount fresh farmed prawns entering the plant/year
4) Amount fresh finfish entering the plant/year (specify which species)
5) Amount fresh other species entering the plant/year
6) Amount processed octopus sold/year + selling price
7) Amount processed WILD prawns sold/year + selling price
8) Amount processed farmed prawns entering the plant/year
9) Amount processed finfish entering the plant/year + selling price
10) Amount processed other species entering the plant/year
11) Weight loss for octopus in %
12) Weight loss for prawns in %
13) Weight loss for marine finfish in %?
14) Electricity consumption/year
15) Fuel consumption/year
16) Amount steel machinery in the processing plant and lifespan
17) Other materials used in the processing plant (material, lifespan)
18) Lifespan of the processing plant (if >30-40 years we can justify that we do not take it into account for the environmental analysis)
19) Destination markets
20) Product transport: distance travelled, by refrigerated trucks, how big? how much octopus and prawns per trip?
21) Use of fresh water? How much?
22) How muchi ice?
23) Packaging, how much plastic s used per year?

APPENDIX SECTION 7 (Synthesis, Risks and Recommendations)

TABLE 1: DETAIL RISK ANALYSIS FOR COASTAL FISHERIES IN MLT AND IN ZNZ

PROBABILITY ASSESSMENT		
low	moderate	high

SEVERITY ASSESSMENT			
low	moderate	high	extreme

	Risk category	Risk description, Rationale, and consequences	Relevant Indicators	Probability	Severity			
					Growth	Inclusiveness	Social	Environment
1	Local market trends – MAINLAND and ZANZIBAR	**Risk:** (Excessive) Increase in prices, particularly for larger fish types. **Rationale:** due to an increased demand (e.g., increasing tourism market, demographic growth in coastal zones, middle-class growth, touristic market, and for MAINLAND industrial processing plants). ➢ Fishers could benefit from this situation with a higher landing price, but this may also continue to attract more people to fisheries, causing overcapacity. ➢ Reduced seafood accessibility, particularly for lower-income people. If seafood is too expensive, potential substitute products may have lower nutritional value. ➢ Some categories of VC actors may be unable to pass on or absorb higher prices and are becoming vulnerable, e.g., artisanal processors.	•Price flows, landing price, end-user price. •VA, and VA shares between categories of actors. Income/actors. •Social indicators.	MAINLAND				
							Low overall, but high for those dependent on purchased marine fish	
				ZANZIBAR				
					The total VA of the chain could be improved		High for the large proportion of actors dependent on purchased fish	In the case of overcapacity
2	International market trends (export, mainly octopus and prawns VCs) – MAINLAND	**Risk:** The export industry (EU mainly) drops down. **Rationale:** Due to pandemics, like Covid, geopolitics, or drastic climate events. ➢ The prices for seafood drop down, and the seafood becomes more available for local consumption, ➢ but the actors depending on the EU market are severely affected as their investment was high.	• Price trends, and flows. • Export volumes and values • Total VA, VA depending on exports to EU, mainly octopus and prawn. • Macro-economic indicators	MAINLAND				
					Moderate to high, as the 2 impacted VCs are minor in absolute terms but important for the trade balance.	Moderate as number of actors in affected VCs are realtively low.	Low overall. However, the social costs may be high for some coastal communities and some actors in the industrial processing sector as well	

	Risk category	Risk description, Rationale, and consequences	Relevant Indicators	Probability	Severity			
					Growth	Inclusiveness	Social	Environment
							as at the level of artisanal fisheries.	
	International market/Global shocks – ZANZIBAR	**Risk**: The tourist industry declines and the prices for seafood drop down in ZANZIBAR. **Rationale:** Due to shocks such as Covid, geopolitics, or drastic climate events. ➢ Actors depending on the tourist market, without the capacity to adapt, are severely affected. ➢ This could make off-shore fishing (for those who already have the capacity) economically unviable and may result in fishers preferring to fish near-shore, increasing overexploitation of resources. Local consumers and VC actors not dependent on the tourist sector may benefit from seafood becoming more available at a lower price	• Number of tourists in Zanzibar. • Price trends, and flows. • Total VA, VA depending on tourist in ZANZIBAR, specified.	ZANZIBAR Moderate to high		Moderate, but variable as some local actors may benefit.	Low-moderate in terms of a drop in seafood prices, but variable. Wider impacts of the decline in tourists are unclear.	in the case of overexploitation of near-shore biological resources
3	Regional market – MAINLAND and ZANZIBAR	**Risk:** Decline of export to the regional market (East and Central Africa markets) **Rationale 1:** political instability, and other events in the region. **Rationale 2:** The standards for the exported seafood may become more stringent and make the exportation to these countries very difficult. ➢ The demand from regional markets may decline, particularly for the dried anchovy subchain. ➢ There would be the need to expand the regional market.		MAINLAND				
					Moderate to high, depending on whether sustainable alternative other domestic or export markets can be developed	Moderate to high	Moderate overall, but high for some communities and actors	
				ZANZIBAR				
					Moderate to high, depending on whether sustainable alternative other domestic or export	moderate to high	Moderate overall, but high for some communities and actors	

	Risk category	Risk description, Rationale, and consequences	Relevant Indicators	Probability	Severity			
					Growth	Inclusiveness	Social	Environment
					markets can be developed			
4	Logistics and infrastructure and access to supplies – MAINLAND and ZANZIBAR	**Risk:** Higher post-harvest wastes and losses. **Rationale:** Consumer preferences are changing from cured to fresh/frozen products (mainly in the MAINLAND, in ZANZIBAR mostly fresh fish is consumed). This further calls for the introduction of CCS. Currently, the existing infrastructure are not adequate (both in MAINLAND and ZANZIBAR). Infrastructure development continues with limited planning and management, and poor facilities. ➢ Inadequate cooling facilities contribute to the deterioration of the seafood, leading to higher product losses, and reducing economic benefits. ➢ This will be accentuated and critical due to the overall rising temperature and occurrence of extreme weather events (rainfalls). ➢ Access to the nodes, and fish markets, are getting more difficult. ➢ Rising energy and fuel costs becomes prohibitive for those actors unable to pass on or absorb the cost.	• Estimation of fish post-harvest wastes and losses. • Fuel and energy costs in percentage of the IGS.	MAINLAND				
							Moderate to High depending on extent of losses	
				ZANZIBAR				
							Moderate to High depending on extent of losses	
5	Policies - MAINLAND	**Risk:** Lack of alignment and increase of ongoing conflicts between the relevant sectors. **Rationale:** An integrated future BE approach could help to address the lack of alignment and conflicts. But	• Evidence-based stakeholder inclusive policy processes • Revised legislation	MAINLAND				
							Moderate, but highly variable, from low to high in coastal	low to moderate; low: if rational and sustainable use of the resource through

Risk category		Risk description, Rationale, and consequences	Relevant Indicators	Probability	Severity			
					Growth	Inclusiveness	Social	Environment
		➢ If the future BE policy is led by a dominant Ministry that is not prioritizing the coastal fisheries sector, this could lead to its marginalization. ➢ MPA guidelines under the fisheries policies intend to promote a rational utilization of the resources, but some fishers could then be excluded or face reduced potential income.	supporting inclusive, sustainable criteria for attribution of subsidies, • VA indicators, Inclusiveness indicators; • Acceptability in the communities of coastal regions • Indicators of Small-scale fisheries				districts. Low if policy processes are inclusive High if policy processes marginalize vulnerable groups	the MPA guidelines; moderate: if the coastal fisheries sector and its sustainable management are marginalized
	Policies - ZANZIBAR	**Risk:** The BE high-monetary sectors are prioritized compared to low-monetary sectors, such as SSF. **Rationale:** In ZANZIBAR, a large proportion of people is directly or indirectly dependent on SSF The **Blue Economy policies** aiming to increase the capacity of fishers may result in winners and losers for the small-scale fisheries sector in ZANZIBAR. ➢ The ZANZIBAR vision may attract more inappropriate investment, particularly in the tourist sector, to the detriment of others, including aquaculture and fisheries. ➢ Either fewer people will engage in fisheries and /or incomes decline for many; while those more connected to the tourist industry will benefit (cf Risk 1). **MCA acts** that intend to reduce the number of fishers in near-shore waters: ➢ These MCA acts may put fishers out of these on-shore areas, sending them more offshore and threatening the livelihoods of fishers without the capacity or support to adapt.	• Evidence-based stakeholder inclusive policy processes • Revised legislation supporting inclusive, sustainable, criteria for attribution of subsidies, • VA indicators, • Indicators of acceptability in the communities.	ZANZIBAR	moderately be affected but the dependency on the tourist sector will increase.	These processes are already on. And will have severe consequences on inclusiveness.	High impact depending on how policies are implemented	moderate to high, if the increased capacity of fishers and tourist sector are not sustainably managed
6	Governance and institutions - MAINLAND	**Risk:** Insufficient capacity of formal and informal institutions to cope with the multiple drivers affecting the coastal socio-ecological systems.	•Legitimacy and portfolio for the BE entity, •the way it is created,	MAINLAND	The impact may be moderate for economic	The impact will be severe on a regional basis economic growth	High in coastal districts	moderate to high, if resource management will be marginalised

	Risk category	Risk description, Rationale, and consequences	Relevant Indicators	Probability	Severity			
					Growth	Inclusiveness	Social	Environment
		Rationale: The inherent complexity of governance and institutions (from the national (e.g. ministry) level to the local (e.g. BMU) level in coastal socio-ecological systems. The approach makes any new initiative, such as a BE future new strategy, very difficult and challenging in its implementation. Stakeholders are very diversified. A co-management, a bottom-up and top-down process must be put in place, as well as the capacity strengthening at all levels. This could lead to: ➢ Poor results in the implementation of BE may induce a change in the government strategy, abandonment of some BE objectives, and changes in the policies. ➢ Weak participation and involvement of stakeholders, particularly fishers, in the design of the strategy, will impair BE legitimacy and applicability.	•the policy pack attached to the BE policies, •the hierarchic position of BE officers, their representativity, •financial supports obtained.		growth, on a short-term basis, which will be placed in alternative strategies, linked to private, high capital investments, including touristic infrastructures.			and if the development of new, non-environmental-friendly/sustainable, touristic infrastructures and attractions will occur
	Governance and institutions - ZANZIBAR	**Risk:** The governance and institutional capacity are not strengthened sufficiently to meet BE challenges and expectations. **Rationale:** High expectations based on a new and complex concept are placed on the BE. The Ministry of the BE has been given responsibility for coordinating the BE without control over all the relevant BE sectors. ➢ Lack of coordination in the implementation of BE may induce a change in the government strategy, abandonment of some BE objectives, and changes in the policies. ➢ Weak participation and involvement of stakeholders, particularly fishers, in the design of the strategy, will impair BE legitimacy and applicability.	• Legitimacy and portfolio of actions for the BE entity. • Hierarchic position of BE dedicated officers, representativity, and financial support obtained. • BE results in terms of economic growth, social development and environmental outcomes	ZANZIBAR	The impact may be moderate for, on a short-term basis, which will be placed in alternative strategies, linked to private, high capital investments, including touristic infrastructures		High, unless capacity for inclusive governance strengthened	moderate to high, if resource management will be marginalised and if the development of new, non-environmental-friendly/sustainable, touristic infrastructures and attractions will occur
7	Social relations – MAINLAND and ZANZIBAR	**Risk:** Rapid social and economic change affects social relations with uncertain, but potentially negative impacts. **Rationale:** Sustainable fisheries require strong management and effective governance, which relies upon some level of cohesion among resource users. Many BMUs (in MAINLAND)/VFCs (in ZANZIBAR) and other local organizations	• Social capital indicators: • Networks, relationships & connections • Trust	MAINLAND			High in coastal districts	lack of cohesion, cooperation, trust and collaboration between fishermen and local institutions can lead to non-

	Risk category	Risk description, Rationale, and consequences	Relevant Indicators	Probability	Severity			
					Growth	Inclusiveness	Social	Environment
		are facing major challenges in maintaining such social cohesion. There is a complex web of social and economic relations in which SSF VC actors are embedded. These may be important as social insurance mechanisms for individuals, while at the same time creating inflexible structures that may perpetuate unsustainable resource extraction ➢ Decreasing social capital results in increasing tension and conflict within and between coastal communities… ➢ Decreasing social capital within VCs increases the vulnerability of various actors	• Civic engagement & voluntary activities • Civic norms, shared norms and values					compliance with particular fisheries control
				ZANZIBAR				
								Same as above
				MAINLAND				
8	Gender,age and alternative livelihood options – MAINLAND and ZANZIBAR	**Risk:** Lack of alternative livelihood options, leading to increasing numbers of people attracted to fisheries VCs and increasing vulnerability. **Rationale:** Some women are becoming significantly more economically empowered at least partly through engaging with fisheries VCs. At the same time, other women, and men (younger and older) are earning income from fisheries value chains but with varying degrees of vulnerability (high dependency and low adaptive capacity). A lack of alternative livelihood options may result in more and more people being attracted to fisheries VCs ➢ Vulnerable people will become even more dependent on fisheries, but with a high likelihood of real incomes declining and increasingly unsustainable livelihoods	• Range of sustainable livelihood opportunities for different social groups in coastal communities				High in costal districts	In the case of overcapacity
				ZANZIBAR				
				Moderate to high			High	In the case of overcapacity
9				MAINLAND				

	Risk category	Risk description, Rationale, and consequences	Relevant Indicators	Probability	Severity			
					Growth	Inclusiveness	Social	Environment
	Food safety and sanitary situation – MAINLAND and ZANZIBAR	**Risk:** Degradation of food, safety and sanitary situation endangered. **Rationale:** Some product processing systems (e.g., drying of anchovies on the ground) provide no protection of the seafood from the ground or from animals that may contaminate it. The use of smokers or chemicals to keep insect pest away during the fresh fish handling and storage of the product has been reported in the literature. In addition, lack of CCS, poor sanitary conditions of the environments where the product transits (landing points, auction points, markets), including the handling of the product, lack of sanitary facilities and the poor waste management (e.g., burning tarpaulins at the end of their lifespan) ➢ low level of hygiene and hazards to human health and environment. ➢ The shelf-life of products is shortened and contamination with *E. coli*, *Klebsiella* spp., and *Salmonella* spp. occur (Marijani, 2022).	• Microbiological analysis of the seafood marketed • Chemical analysis of the stored seafood • Sanitary inspections				chemicals can be harmful to biotic resources. The poor hygienic conditions and waste management are highly detrimental for human health and the environment
				ZANZIBAR				
								As above
				MAINLAND				
10	Weather and climate change – MAINLAND and ZANZIBAR	**Risk:** Highly reduced availability of the biotic and abiotic resources on which SSF depends **Rationale:** The effects of human-driven climate changes are evident and widespread. Climate change is affecting marine ecosystems in several ways (in particular in equatorial and tropical regions), eg., an increase in surface seawater temperature, frequency and intensity of extreme weather events (e.g., rainfall), changes in winds and water currents. Particularly relevant for low-lying islands, such as those belonging to the ZANZIBAR archipelago, further effects of climate change are seawater level rise, tidal range variations, and coastal erosion.	• Meteorological observations • remote-sensing monitoring • Beach profile-transect lines				High to extreme, depending on adaptive capacity and climate chnage scenario	
				ZANZIBAR				

	Risk category	Risk description, Rationale, and consequences	Relevant Indicators	Probability	Severity			
					Growth	Inclusiveness	Social	Environment
		➢ species losses, displacement/shifts, ➢ shift of community composition and changes in ecosystem structure, ➢ decline in ecosystem quality and loss of specialized ecosystems, ➢ reduction/loss of ecosystem services provided by marine ecosystems (food provisioning, tourism, employment…) ➢ increased post-harvest losses ➢ sea-level rise and potential saline water intrusion in the aquifers and relocation of people leaving along the coast (as already happened in Pemba in 2014).					High to extreme, depending on adaptive capacity and climate change scenario	
11	Fish stock status – MAINLAND and ZANZIBAR	**Risk:** Potential stock depletion **Rationale:** Although little information on the health status of the stocks is available, it is likely that several target species of both Mainland and Zanzibar are already close to being fully exploited and could be overexploited, with minimum stock regeneration. Currently, the cooperation between MAINLAND and ZANZIBAR for the common management of shared biological resources is weak. ➢ Potential collapse of some stocks, slow stock rebuilding ➢ Economic and social consequences	• CPUE • Stock assessment • Landing site monitoring and catches recordings	MAINLAND				
							High to extreme	
				ZANZIBAR				
							High to extreme	
12				MAINLAND				

Risk category		Risk description, Rationale, and consequences	Relevant Indicators	Probability	Severity			
					Growth	Inclusiveness	Social	Environment
	Natural environment – MAINLAND and ZANZIBAR	**Risk:** Destruction of sensitive ecosystems, reduced availability of biotic and abiotic resources, scarce recruitment **Rationale:** Some fishing and touristic practices, and the establishment of infrastructures that profoundly alter the territory can be harmful to sensitive and biodiverse marine environments, e.g., dynamite fishing, beach seines, spearguns, mangrove firewood, irresponsible touristic snorkeling, dams (in MAINLAND). ➢ Coral reef and seabed destruction ➢ Mangrove deforestation ➢ Species losses and changes in biotic community compositions ➢ Altered breeding sites and consequent little rebuilding capacity of biotic populations	• Inventory of biological resources, • % coverage, • VCA4D indicators • Community composition monitoring				Moderate	
				ZANZIBAR				
							Moderate to high	
13	Investment in fisheries capacity	**Risk:** Increased overexploitation of fisheries; perceived or actual unfair distribution of government support **Rationale:** Fish Aggregating Devices (FADs) and subsidized fleet motorization may bring benefits to some fishers (e.g., increased catches and reduced exploitation of inshore fish populations), but if not well managed and supervised will have negative outcomes, for example: ➢ Sub-optimal management of fisheries investments can generate discontent between those who benefit and those who do not, and between the government and the possible beneficiaries, decreasing confidence ➢ Failure to monitor subsidised resources results in a loss of funds, when subsidised resources are abandoned, destroyed, not utilised due to a lack of other necessary resources (fuel for better performing vessels for off-shore fishing), and possibly overexploitation of the resources ➢ At the same time, by enabling fishing further from the coast, the level of motorisation of the fleet will inevitably increase, with consequent fuel use increase and related environmental impacts, especially if the CPUE does not augment.	• CPUE • Stock assessment • Landing site monitoring and catches recordings • Fishers income, • Economic inclusiveness	MAINLAND				
								Localised risk
				ZANZIBAR				
								Localised risk

TABLES 2A to 2G: COMPLETE SWOT ANALYSIS FOR THE COASTAL FISHERIES SUBCHAINS IN MLT AND IN ZNZ

Table A: Mainland Anchovy sub-chain SWOT analysis

MAINLAND SMALL PELAGIC (ANCHOVIES) VALUE CHAIN	
STRENGTHS	**WEAKNESSES**
It employs different stakeholders in terms of gender, age and seems to provide a consistent source of income, particularly for non-fishermen stakeholders.	High dependency on Congolese buyers – vulnerability – and presumed illegal market.
Essential position of middlemen/women – is an asset. Entrepreneur capacity. These actors drive employment.	High post-harvest losses due to spoilage, thus the need for drying processing. But the drying processing is strongly dependent on the season. During the rain season, despite the processing, the post-harvest losses are high.
The investment cost for the processing phase is relatively low to set up and run.	The investment costs for the fishing phase are high.
It makes a significant contribution to some coastal rural local economies.	No information on fish stock status and migration patterns of the targeted species.
Important for food and nutrition security, at the national and regional level. Good source of a product of high nutritional value, accessible to low-income consumers.	Potentially, the stock is fully exploited. However there is uncertainty of stock size and catch volumes. In this regard, the report of catches and processed volumes is not thorough (no good traceability- e.g., through auctions, and little monitoring of fish catch at the landing sites). The official catch data are underestimated.
The by-product from the anchovies processing gets value entering the feed industry (dust for the chicken meal).	Limited use of the Mainland and Zanzibar fisheries management plans in coordinating the common resources.
The sub-chain provides employment, with a high rate of female participation.	Use of wood for boiling and frying procedures and cooking oil for frying (high damages to Human Health and impact to Global Warming Potential). Use of plastics.
The high contribution of the sub-chain to the overall seafood market. E.g., anchovies account for 43% of the product passing through the FFM (2019).	No revenue collection at the landing site by the BMU.

MAINLAND SMALL PELAGIC (ANCHOVIES) VALUE CHAIN	
OPPORTUNITIES	**THREATS**
Co-designed improved sustainable (economically environmentally and socially) alternative drying systems (e.g., efficient drying devices).	Increasing fishing effort (number of fishing gears and crafts) can lead to exceeding the capacity of the stock, resulting in its overexploitation. Little coordination between the Mainland and Zanzibar in the common resource exploitation can affect the stock.
Market environment analysis and impact assessment for the evaluation of the sustainability of different/alternative processing systems.	Inadequate application of the management plan leads to issues including multi-species fishing activity, species with different sizes at maturity, and mixed-species composition of the catch. The small mesh size of the gear used results in the risk of possible capture of juvenile/immature/undersized specimens.
Encourage a joint partnership with Congolese stakeholders to invest in the development of alternative drying systems and facilities.	High external demand could be a threat to the food and nutrition security of low-income domestic consumers.
Funding opportunities for stock assessment. Knowledge about population dynamics, stock status, spawning season and areas would inform a decision on stock management.	
Improving the monitoring system at the landing sites.	
Strengthen the capacity of the BMU to improve the working environment. The local authorities can support the management	
The linkages between the income from the fisheries value chain and the local rural economy (ancillary services) can be improved.	
The Government could give official recognition to all the key actors as representatives of the value chain.	
Implementation of the fisheries management plans.	
The use of ring nets is gaining momentum even though the legality of this gear is controversial. Understanding the potential risks and benefits associated with the use of ring nets, as opposed to purse seines, and clearly defining its suitability for use or non-use, would benefit management systems.	
Financial support to the scientific community to carry out or improve knowledge on biological resources and ecosystems.	

TABLE A: MAINLAND ANCHOVY SUB-CHAIN SWOT ANALYSIS

Table B: Mainland Finfish sub-chain SWOT analysis

MAINLAND FINFISH VALUE CHAIN	
STRENGTHS	**WEAKNESSES**
Most of the catch (70%) passes through the auctions. This helps to record official catch tonnages. The auction provides transparency in the marketing system.	Medium and large pelagic fish stocks assessments need to be carried out or updated.
A high percentage of the catch transits through the FFM. This is a big node and improves the tracing.	As for the small pelagic value chain, the stocks are common between the Mainland and Zanzibar. Risk of overexploitation.
Multispecific actors at all levels, high degree of adaptation and agility of actors according to market trends.	Limited use of the Mainland and Zanzibar fisheries management plans in coordinating the common resources.
Diversity of species, the offer is wide and could be high quality.	Reef fish stocks are unknown, risk of overexploitation. The knowledge of the ecological status of the reef is lacking.
BMU and the CFMA (Collaborating Fisheries Management Area) allow for area-specific management. Different communities are sharing common reefs.	The continental shelf is narrow and as consequence also the amount of resources.
This co-management is particularly important for this value chain because the fishers using purse seine and ringnet are not linked to a specific landing site.	Auction facilities are often unhygienic, with poor facilities and no refrigeration systems.
This value chain is a key component for the food security of coastal communities	Uncertainties on flows, and exact figures at all levels. Inadequacy between numbers (fishers, vessels, catches)
High numbers of small artisanal fisheries, through canoe, sails. Low investments.	The unclear status of ring netters. Their catches are high, are not fully “registered” in the official statistics, and are not included in the CSMA. Very low license costs compared to the catches they can get and compared to other fishing units. Ring netters do not necessarily unload the catch at the landing site linked to the fishing area. This precludes BMUs from collecting levies.
Import and export are not allowed. This helps in protecting the local market.	Dynamite fishing practices are still on.
	Insufficient ice and cold chain facilities, quality degradation at all levels.
	The more and more dominating situation of industrial processors leading to the vulnerability of small size actors, independent traders, and artisanal processors.
	The low percentage of registered vessels.
	The extent to which the BMU and CFMA manage the areas is variable.
	Possible damages to the reef.

MAINLAND FINFISH VALUE CHAIN	
OPPORTUNITIES	**THREATS**
Upgrading working conditions in BMU and auctions	Reef fish at risk of overexploitation. The degradation of the reefs is a big threat to this and other value chains. Changes in the composition of the reef community, also due to climate changes (coral bleaching, rise in seawater temperature).
Developing market for fresh and frozen finfish market in urban areas, tourists, and supermarkets.	Medium and large pelagic fish stocks, risk of overexploitation.
Improving traceability and data recording through node places, such as the FFM	The potential dominant situation of ring netters is detrimental to other fishers.
Upgrading cooling facilities at the landing sites, auctions, and markets (e.g. FFM), using BMU.	With a potential expansion of the market, the price for this seafood product could increase, thus becoming not affordable by the coastal community.
Improving collaboration between district officers and BMU.	The disappearance of certain types of actors, as their margins become too low (for instance, small independent traders).
Upgrading loading facilities of landing sites and transportation means.	
If the finfish product becomes more expensive, local communities could rely on low cost but higher nutritional value seafood, e.g. small pelagic.	
Improve the traceability of the fishers.	
Assessment of the ecological status of the reef.	
Use of Fishing Aggregating Device (AFD) at the slope of the continental shelf, as long as it is well managed and monitored (improved co-management regime from the local coastal community and scientific teams)	
Financial support to the scientific community to carry out or improve knowledge on biological resources and ecosystems.	

TABLE B: MAINLAND FINFISH SUB-CHAIN SWOT ANALYSIS

Table C: Mainland Octopus sub-chain SWOT analysis

MAINLAND OCTOPUS VALUE CHAIN	
STRENGTHS:	**WEAKNESSES**
The co-management system of the fishing activity with the closures is an interesting initiative and has some benefits.	The system of closures is an initiative proposed by NGO, an external stakeholder.
Women have knowledge and skills that enable them to engage and benefit from primary production and in the VC.	The concern of some stakeholders on the access to the fishing ground by migrant/occasional fishers, especially during the opening of the closed season.
High-value product and relatively low cost for fishers.	Lack of area-specific management plans for octopus fisheries.
Value chain based on short life cycle species.	Bulk production during the opening of closed season creates an oversupply of the market. Despite the fact that BMU, the local government and the companies agree on a fixed price for the 3 days of the closed season, thereafter prices drop.
Specific (legal) fishing gears avoid unintentional by-catch.	Insufficient cold storage capacity.
Ban of destructive fishing methods (dynamite, spear guns).	The closure system is resulting in winners, but some actors perceive themselves as losers, e.g. some women foot fishers in Songo Songo (see below).
Royalties are an asset for the Government.	Weak enforcement regime, including non-monitoring of the migrant fishers reduces the income for local fishers and increases pressure on the stock.
Processing plants provide employment for men, women, and youth in the formal sector and therefore protected by employment law.	An increasing number of divers (predominantly men) is creating overcapacity and reducing the opportunities for foot fishers (predominantly women).
	The net profit seems to be unbalanced among fisher typology (foot fishers vs divers, male vs female), but also along the value chain (potential unbalanced profits in the VCA, profits mostly in the traders).
	High dependency on a limited market, especially tourist and EU markets. This can result in vulnerability to short-term shocks (e.g. COVID or EU fluctuations on octopus demand).
	The Royalty level for export is creating potential distortion compared with the international market. Compared to other countries, the royalties are perceived to be too high.
	Potentially, the royalties can be the reason for the illegal export to North and South.
	Illegal imports from Mozambique are apparently relevant and there could be a loss of income for the Government. There could be increased pressure on octopus stock in Mozambique.
	The use of illegal fishing methods is still reported (dynamite, spear guns).
	Little information on the biological characteristics of the species (size at maturity, reproductive areas, stock status, that is likely fully exploited)
	The fishing method (in particular foot fishing and the use of the spear) can damage the reefs, especially during the opening season (high number of fishers).
	The current fishing methods (use of the spear) do not allow the evaluation of the octopus size before its capture (and killing), the capture of undersized specimens is likely.
	The limited capacity of the BMU for monitoring, control, and surveillance (MCS) of the system.

MAINLAND OCTOPUS VALUE CHAIN	
OPPORTUNITIES:	**THREATS:**
The initiative of closures can be further developed at a larger scale but all key stakeholders should be included, particularly weaker stakeholders in the decision-making process	Lack of data on the ecological status of the reef and clear info on stock status.
African Free Trade Area agreement could expand the regional market. The access to other markets could also be improved, e.g. the Zanzibar market	The lack of good ecosystem-based management of the reef could lead to negative effects on economically important fisheries resources and other species.
MSC certification system has the potential for further environmental and social benefits. It would also help to open new market opportunities, but this requires knowledge of the stock status and environmental sustainability of the fisheries.	Lack of clear access rights and management of the licenses (the increasing number of divers (men) vs foot fishers (women)) could lead to the potential overexploitation of the stock and further reduction in the number of women involved in octopus fishing.
The use of alternative fishing methods. The use of traps and pots for octopus fishing is in an experimental phase. These alternative fishing methods could allow access to other foreign markets (e.g., Japan market would accept octopus if caught using pots or jars)	Dependency on a small number of markets (for example the EU market)
Area-specific management plans could open opportunities for the diversification of the measures to be adopted in different fishing areas and give the opportunity to restore traditional valuable fishing methods	The effects of climate change (coral bleaching, rise in seawater temperature) could lead to resources displacement and/or stock declining.
Promotion of the cold-chain system, above all in remote areas.	
Financial support to the scientific community to carry out or improve knowledge on biological resources and ecosystems.	

TABLE C: MAINLAND OCTOPUS SUB-CHAIN SWOT ANALYSIS

Table D: Mainland Prawn sub-chain SWOT analysis

MAINLAND PRAWN VALUE CHAIN	
STRENGTHS:	**WEAKNESSES**
Good monthly income for fishers during the season, compared to the other value chains and minimum wage.	Poor working conditions and precarity for the fishers. The areas where prawns fishing takes place are wetlands, where the likelihood of contracting malaria can be high.
Virtually all fishers are small-scale for the primary sector. The value chain can provide an additional income to fishers and collectors of the coastal community. The majority (3/5) have no costs but receive a lower price from selling. Entry capital costs are approximately zero.	Some highly productive areas are not easily accessible to fishers (lack of infrastructures).
Demand is much higher than production.	Lack of a stock assessment and its weak control and evaluation. Lack of comprehensive knowledge of species biology.
High capacity of medium and large-scale processing plants.	Illegal market, lack of MCS system.
Processing plants provide employment for men, women, and youth in the formal sector and therefore protected by employment law.	Prawn farm in Mafia not currently working. The reasons are not clear. Processors complain about the shortage of products.
Royalties are an asset for the Government.	Limited involvement of women in the primary production sector.
	Processing plants work under capacity because of the low supply.
	The Royalty level for export is creating potential distortion compared with the international market. Compared to other countries, the royalties are perceived to be too high.
	Limited creation of non-fisher value chain employment in rural areas. The product is processed at medium-large processing plants for the export market.
	Use of small inches mesh size nets and other gear types (cast nets and barrier net at the mouth of the rivers) can have negative effects on the resources (capture of juvenile stages and undersized fishes)
	Degradation of critical habitats, e.g., sea-bottom with the use of the trawlers.
	Damage to the mangrove habitats.
	Impact of the generalized closed season on sustainable livelihood. Different fishing areas can host different species with their peculiarity in terms of the life cycle. No purpose in having the same closure season for the different areas if life cycles are different.
	Weak data and information flow system.
	Excess pressure on Rufiji resources.
	Conflicts between trawler fishers and small-scale fishers.
	Weak institutional linkages and user participation (BMU).
	High cost of prawn fisheries management (MCS system is expensive to operate).
	Although not comprehensive, data on catches indicate that the stock is exploited over its capacity.
	Lack of scientific and economic data.

MAINLAND PRAWN VALUE CHAIN	
OPPORTUNITIES:	**THREATS:**
If well managed, the investment by industrial trawlers can be an opportunity.	If not well managed, the excessive position of trawler/industrial fisheries could lead to overexploitation and decrease opportunities for the artisanal fishers.
Prawn management plan to be implemented, when published.	Climate change and coastal ecosystem degradations (among other climate-change-induced environmental problems, mariculture in mangroves areas).
Funding for habitat description and biological evaluation of the stock. Marine Special planning.	Increased illegal fishing, often passed off as by-catch, can negatively affect the stock.
Closure system: proposed closures from August to January, except for Rufiji Delta which should be considered a no-fishing zone. Closures should not be generalized but set accordingly to the critical life stage seasonality of the different species.	The processing plants can face potential bankruptcy if no sufficient product supply and no alternative product to be processed and traded.
Certifications at both the fishing level and along the value chain (e.g., Fair Trade, MSC).	
Sustainable farming could be an opportunity, provide it is sustainably managed.	
Investment in MCS (monitoring, control, and surveillance) system.	
Measures for the preservation of mangrove and seagrass bed ecosystems.	
Actions for raising awareness on environmental issues (environmental degradation, overfishing, stock collapse) and associated risks for the community.	
All the actors have to be consolidated in their position, the basis is fragile.	
Financial support to the scientific community to carry out or improve knowledge on biological resources and ecosystems.	

TABLE D: MAINLAND PRAWN SUB-CHAIN SWOT ANALYSIS

Table E: Anchovy-like Zanzibar sub-chain SWOT analysis

ANCHOVY-LIKE ZANZIBAR VALUE CHAIN	
STRENGTHS:	**WEAKNESSES**
The value chain creates significant local employment, including women and youth	The monopoly of the foreign buyers can generate vulnerability
Middlemen-women position, entrepreneurship	The perceived high tax level driving (presumed) illegal export.
The value-chain contributes to the export, royalties.	Migrant fishers can land their catch outside Zanzibar, thus limiting the traceability of catches
Compared to industrial processing, this value-chain needs relatively low investment for processing, which enables the establishment of collective processing enterprises by diverse groups.	High fish loss and waste due to spoilage and poor market environment
Contribution to local economies	Weak data and information flow systems, including stock assessment and limited catch volumes passing through the auctions, lead to uncertainties in actual catch figures and existing potential yield.
The value-chain contributes to the availability of food with a high nutritional value (although the majority is exported)	The common resources between the mainland and Zanzibar are not managed collaboratively by the two governments
The « dust », a by-product, gets value entering the channel of chicken feed industry	The massive use of firewood for boiling and frying contributes to deforestation and harmful emissions. Sustainable management of wood resources could limit the deforestation issue. Use of firewood also has damages on Human Health and impact on Global Warming
Large seafood market share	Weaknesses in waste management, including the use of plastics.
Small Pelagic Fisheries Management Plan is in place (Department of Fisheries Development (2019). Small Pelagic Fisheries Management Plan. Ministry of Agriculture, Natural Resources, Livestock and Fisheries, Zanzibar. 103 pp)	

ANCHOVY-LIKE ZANZIBAR VALUE CHAIN	
OPPORTUNITIES	**THREATS**
Co-designed improved sustainable (economically, environmentally and socially) alternative drying systems (e.g., drying devices).	Increasing fishing effort can increase the risk of overexploitation.
A market environment audit will provide for the identification of potential solutions to improve the value chain	Insufficient coordination between the Mainland and Zanzibar in the management of common resources can increase the risk of overexploitation.
An impact assessment for the evaluation of the different/alternative energy sources for the processing systems	High external demand could be a threat to the domestic food and nutrition security, particularly for low-income domestic consumers.
Understanding the potential risks and benefits associated with the use of ring nets, as opposed to purse seines.	Overexploitation of low-trophic level species can affect the higher levels of the food web
Assess the sustainability (economic and social) of a joint partnership with traders and foreign buyers to invest in the development of alternative drying systems and facilities.	The investment costs for the fishing phase are high and the income of the crew is low. These factors can increase inequality.
Funding opportunities for stock assessment and the implementation of the fisheries management plans. Financial support to the public, academic, and research institutions	
Strengthen data and information flow systems, including those at the landing sites	
Improvement of the landing site infrastructure	
Strengthen the capacity of the local officers to perform their jobs	
Planning investments to encourage stronger synergies between the fisheries value chain and the local rural economy (including ancillary services)	
Encouraging more inclusive planning and investments in decision-making processes along the value chain at different scales (local to national)	
Further collaboration with Mainland to improve management of the whole sub-chain, for example by the establishment of a national small pelagic committee.	

TABLE E: ANCHOVY-LIKE ZANZIBAR SUB-CHAIN SWOT ANALYSIS

Table F: Zanzibar Finfish sub-chain SWOT analysis

ZANZIBAR FINFISH VALUE CHAIN	
STRENGTHS:	**WEAKNESSES**
A high percentage of the catch passes through the auctions. This helps to record official catch tonnages. The auction provides transparency in the marketing system.	Weak data and information systems, including stock assessment, lead to uncertainties in actual catch figures and existing potential yield.
A high percentage of the catch transits through the urban markets. They are big nodes and improve the market network.	There is often tension between MCA managers, fishers, and local communities. Fishers are complaining that they are « pushed » away. Local community members' expectations of benefits from MCAs are often not met.
Very significant sub-chains for economic growth and employments.	Common resources (med-large pelagics) between the mainland and Zanzibar are not managed collaboratively by the two governments.
Multi-specific actors at all levels, greater opportunity for adaptation, compared to the other identified VCs, and capacity of actors according to downstream market trends and the upstream resource fluctuation.	Different communities are sharing common reefs. This leads to major conflicts between communities.
Diversity of species, the offer is wide.	Fishers using purse-seines and ring nets are not linked to a specific landing site and may have less commitment to the sustainable management of the local resources.
Mostly good quality product when landed, because of the type of fishing gears used (e.g. handlines, traps), this contributes to higher prices.	The increased frequency of stronger winds and waves damages the fishing gears and shortens their lifespan.
The high percentage of the fishing grounds are placed under MCAs for improved resource management	Seasonally, whales could damage passive fishing gears.
Reef fisheries management plans are published. (Department of Fisheries Development. (2019). Reef Fisheries Management Plan. Ministry of Agriculture, Natural Resources, Livestock and Fisheries, Zanzibar. 91 pp.)	Inadequate monitoring, control, and surveillance (MCS) system for dealing with illegal fishing practices (e.g., small mesh sizes, torches), even within the MCAs.
Village fishers' committees potentially allow area-specific management.	Low percentage of registered vessels.
This value chain is a key component for the food and nutrition security for rural and urban households.	Ghost fishing (eg., lost traps, monofilament net) occurs and causes damage also to other marine species
The sub-chain is essentially labour-intensive, contributing to local employment.	Little energy efficiency/high fuel intensity for motorized fishing activities.
High numbers of non-motorised vessels having lower environmental impact	Poor marketing infrastructure, including auctioning platforms.
The tourist sector provides a lucrative market for reef fish and med-large pelagic.	Large pelagic management plan to be published.
	Weaknesses in controlling harmful practices on coral reefs.
	Absence of closure periods during the breeding periods of reef species

ZANZIBAR FINFISH VALUE CHAIN	
OPPORTUNITIES	**THREATS**
Upgrading market infrastructures. Improve the traceability of the fishers.	Reef fish at risk of overexploitation. The degradation of the reefs is a big threat to this and other value chains. Changes in the composition of the reef community, are also due to climate changes (coral bleaching, rise in seawater temperature). Medium and large pelagic fish stocks, risk of overexploitation, as pressure is high, and also juvenile fish are marketed locally.
There is an opportunity of improving the sub-value chain by implementing the development plans, such as the Blue Economy strategy,	The potential dominant situation of ring netters or fiberglass boat-fishers may become detrimental to other fishers.
There is an opportunity in upgrading the working conditions in local coastal auction sites at the landing sites and urban markets, as well as loading facilities and transportation means. Malindi fish market is under construction.	With a potential expansion of the tourist market, the price for this seafood product could further increase, thus becoming even more unaffordable by the coastal community.
There is an opportunity in improving traceability and data recording through node places, such as auctions and markets.	The disappearance of certain types of actors (for instance, small independent traders), as the market tends to be more organised and controlled.
The development of the Cold Chain System (CCS) will improve the market of fresh and frozen finfish in urban areas, tourists, and supermarkets, and meet the changes in consumer preferences.	If the fishing activities carried out more offshore (by means of fiberglass boats) do not provide for higher catch volumes, the fuel use intensity increases leading to higher environmental impacts. In addition, fishers will likely need to come back to the MCAs and contribute to the fishing pressure.
Funding opportunities for stock assessment and the implementation of the fisheries management plans. Financial support to the public, academic, and research institutions.	Subsidies distributed as Interest-free loans to fishers may results in distributional injustices – “haves” and “have nots”.
Improving the environment for women as traders to further increase the trend of women’s participation in the value chain.	The economic benefits stemming from externally- initiated tourism developments in small-scale fishing communities are not widespread, and usually benefit only a minority of community members (cross-cutting).
Improving collaboration between district officers, fishers’ committees and MCAs managers.	
Opportunity for a higher degree of cooperation with Mainland on common stocks (small-medium and large pelagics), fishers (migrants), and market environment	
Exploring the use of Fishing Aggregating Device (FAD) at the slope of the continental shelf, as long as it is well managed and monitored (improved co-management regime from the local coastal community and scientific teams).	
Explore and assess the social and environmental outcomes of the use of subsidies in the form of interest-free loans to get access to fully equipped fiberglass vessels to encourage fishers to fish beyond 6 NM from the coast. This should be done under the deployment of efficient tracking systems.	
Explore the use of renewable energy sources to enable the electrification of the overall value chain, from the resource extraction (electric engines) to the markets.	

TABLE F: ZANZIBAR FINFISH SUB-CHAIN SWOT ANALYSIS (CONTINUED)

Table G: Zanzibar Octopus sub-chain SWOT analysis

ZANZIBAR OCTOPUS VALUE CHAIN	
STRENGTHS:	**WEAKNESSES**
The co-management system of the fishing activity with the closures is an interesting initiative and has some benefits.	The system of closures is an initiative proposed by NGO, an external stakeholder. Expansion very limited in Zanzibar.
Women have knowledge and skills that enable them to engage and benefit from primary production and in the VC.	The concern of some stakeholders on the access to the fishing ground by migrant/occasional fishers, especially during the opening of the closed season. Octopus fishers who do not make use of vessels in Zanzibar are not licensed (about 15% of all foot fishers and divers).
High-value product and relatively low cost for fishers.	Lack of area-specific management plans for octopus fisheries.
Value chain based on medium/low-trophic and short life cycle species. Breeding dens are less accessible by foot fishers (> 5m deep water) (but divers?)	No industrial processing facilities. Insufficient cold storage capacity.
Specific (legal) fishing gears avoid unintentional by-catch. Ban (although not completely effective) of destructive fishing methods (dynamite, spear guns).	The current fishing methods (use of the spear) do not allow the evaluation of the octopus size before its capture (and killing), the capture of undersized specimens is likely. The limited capacity for monitoring, control, and surveillance of the system
Octopus Fisheries Management Plan published Different actions aimed at restoring the reef (eg., ReefBall). Most of the reefs, octopus fishing grounds are placed in MCAs. NGOS are operating in these areas and providing support (eg Mwambao).	The fishing method (in particular foot fishing and the use of the spear) can damage the reefs, especially during the opening season (high number of fishers). The use of illegal fishing methods is still reported (dynamite, spear guns).
Importance of the tourism sector as consumers, « local » export.	Little information on the biological characteristics of the species (size at maturity, reproductive areas, stock status).

ZANZIBAR OCTOPUS VALUE CHAIN	
OPPORTUNITIES	**THREATS**
The initiative of closures can be further developed at a larger scale but all key stakeholders should be included, particularly weaker stakeholders in the decision-making process. The NGOs and MCAs status are an asset.	Lack of data on the ecological status of the reef and info on stock status.
African Free Trade Area agreement could expand the regional market. The access to other markets could also be improved, Zanzibar- Mainland market cooperation	The lack of good ecosystem-based management of the reef could lead to negative effects on economically important fisheries resources and other species.
MSC certification system has the potential for further environmental and social benefits. It would also help to open new market opportunities, but this requires knowledge of the stock status and environmental sustainability of the fisheries.	Lack of clear access rights and management of the licenses (the increasing number of divers (men) vs foot fishers (women)) could lead to the potential overexploitation of the stock and further reduction in the number of women involved and benefitting from octopus fishing.
The use of alternative fishing methods. The use of traps and pots for octopus fishing is in an experimental phase. These alternative fishing methods could allow access to other foreign markets (e.g., Japan market would accept octopus if caught using pots or jars)	Dependency on tourist market
Area-specific management plans could open opportunities for the diversification of the measures to be adopted in different fishing areas and give the opportunity to restore traditional valuable fishing methods	The effects of climate change (coral bleaching, rise in seawater temperature), as well as the possible increased fishing effort due to tourism, could lead to resource displacement and/or stock decline.
Promotion of the cold-chain system, above all in remote areas.	
Financial support to the scientific community to carry out or improve knowledge on biological resources and ecosystems.	
Further cooperation between Mainland and Zanzibar for marketing opportunities, and business environment, processing plants in MAINLAND.	

TABLE G: ZANZIBAR OCTOPUS SUB-CHAIN SWOT ANALYSIS