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TALLER DE CADENAS DE VALOR Y
ZONAS ECONÓMICAS ESPECIALES
TUXTLA GUTIÉRREZ, CHIAPAS.

CHIAPAS: INDUSTRY IDENTIFICATION & ANALYSIS

TUXTLA GUTIERREZ – APRIL 14, 2016

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Trade & Competitiveness Global Practice

Contenido

- De la Complejidad Economica a la Identificacion de Industrias. Donde estamos?

- Identificacion de Industrias y Alternativas de Politicas

- Analisis de Industrias. Que se necesita para competir globalmente en las industrias relevantes a Chiapas?

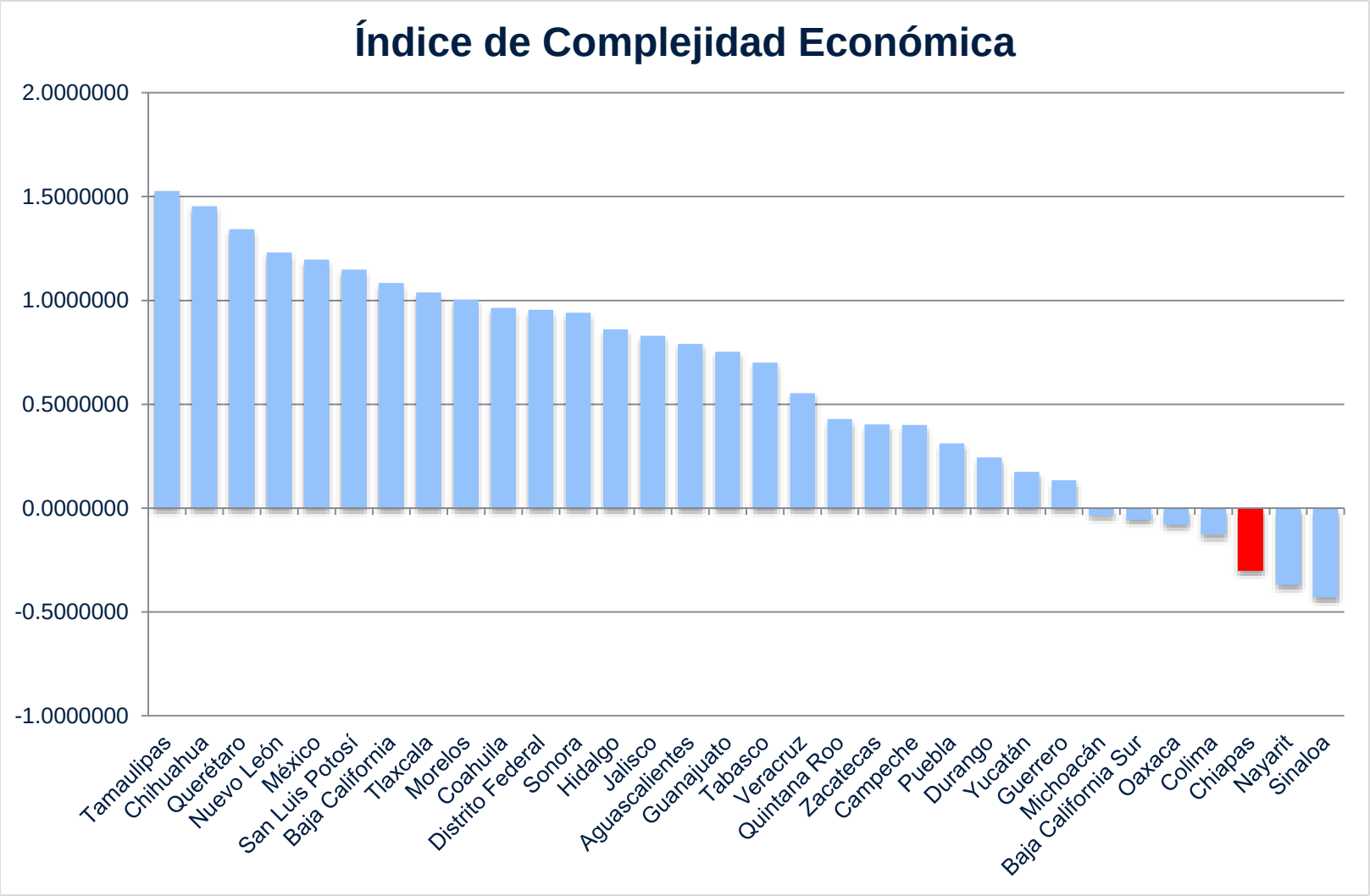
    - Petroleo & Gas
    - Manufactura (automotriz, textiles – confecciones)
    - Agroindustrial (industria lechera, productos carneos)
    - Exportaciones Agricolas (café', aceite de palma, frutas y hortalisas)

- Donde se encuentra Chiapas en cada uno de estas industrias? – Discusion para las mesas sectoriales

- Proximos pasos en el contexto del nuevo programa de Zonas Economicas Especiales?

From Economic Complexity to Industry Identification. Where do we stand?

Chiapas es también uno de los estados que exhibe menor complejidad económica de México



(Source: Harvard CID, 2015)

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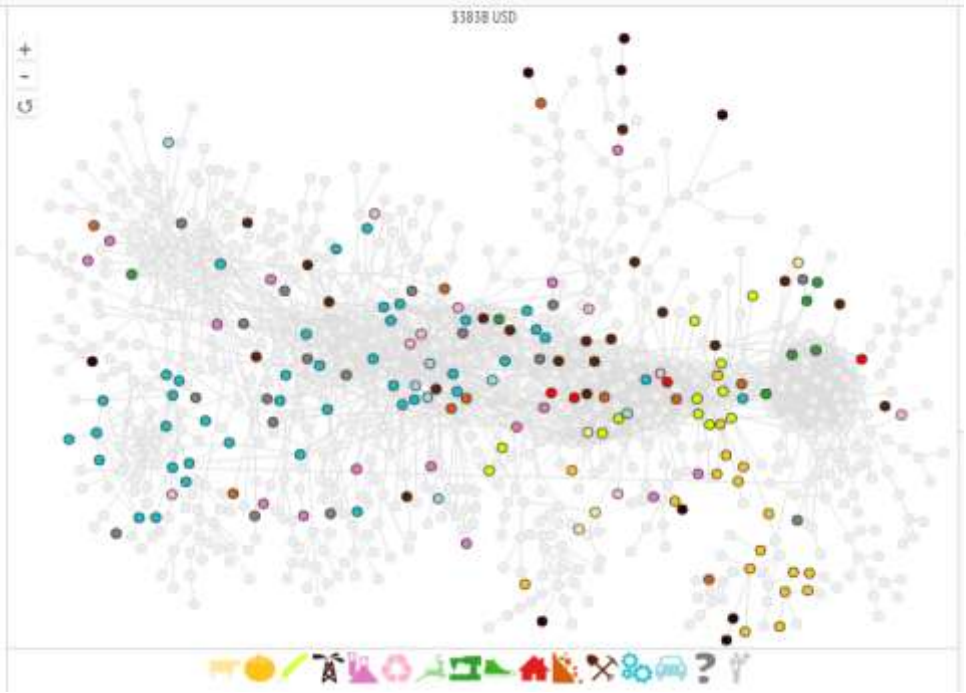
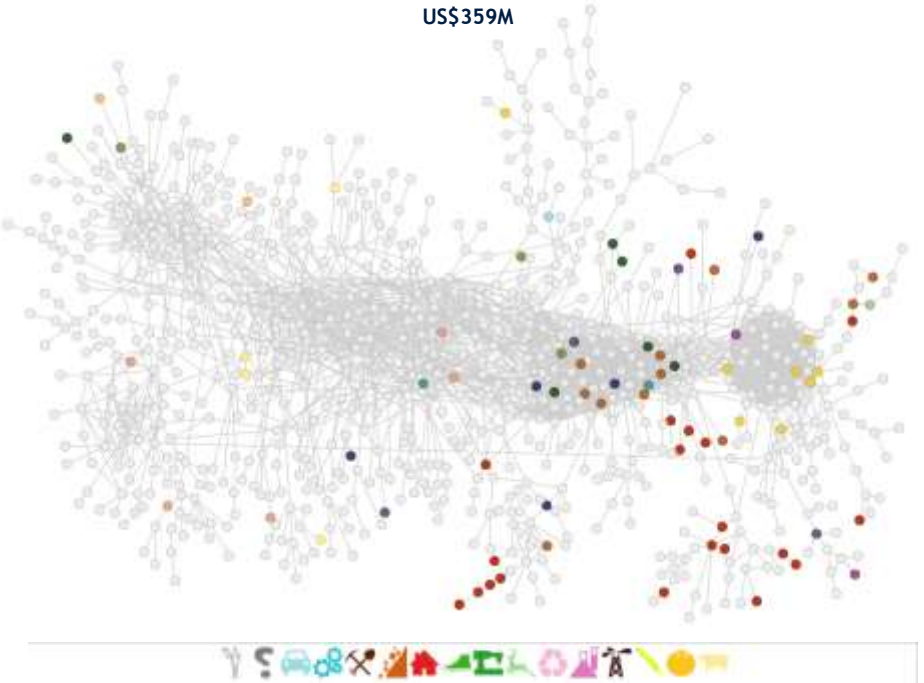
Las diferencias en diversidad y complejidad entre Chiapas y el resto de México se hacen evidentes a primera vista

Product Space of Mexico (2014)



Product Space of Chiapas (2013)



(Source: Harvard CID, 2015)

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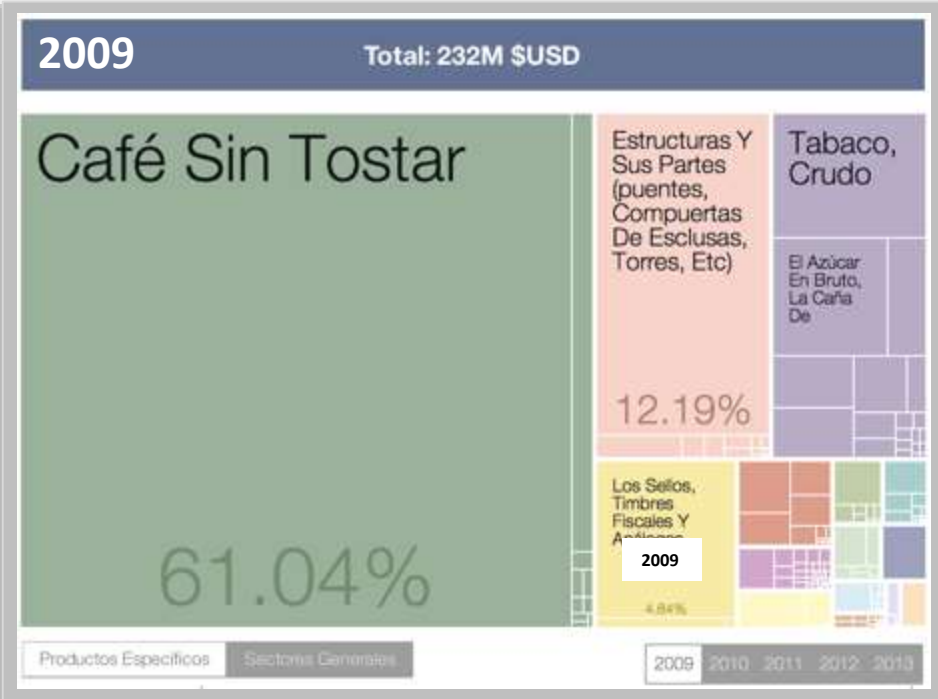
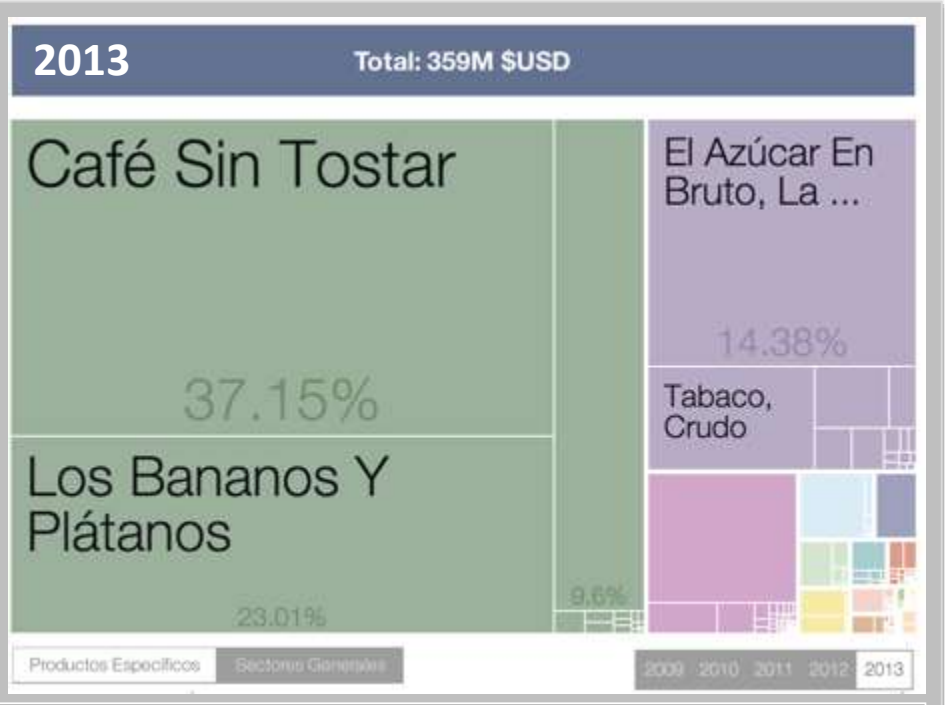
¿Cuáles son los principales productos de exportación de Chiapas?





- El ***café*** ha cedido terreno (61% a 37%) a ***plátanos y bananos*** (23%) y ***dátiles*** (9,6%)
- Los **pocos productos de fabricación en 2009 han desaparecido** (fabricación de estructuras y sus partes: puertas, compuertas, esclusas, torres) y han sido reemplazados por productos alimenticios de baja complejidad como el azúcar y el tabaco
- Otros **bienes más sofisticados vienen perdiendo espacio** (esquina inferior derecha) frente a productos primarios del reino vegetal y alimentos

(Source: Harvard CID, 2015)

What are the main opportunity products identified in the Economic Complexity Analysis for Chiapas?

Estrategia balanceada

- Con base en la distancia relativa se identificaron productos con potencial de rápida diversificación productiva ("*low hanging fruits*")
- Con base en la distancia (60%), la complejidad económica (20%) y el valor estratégico (20%), se identificaron productos de alto potencial estratégico
- Se combinaron ambos criterios y se agruparon las oportunidades por sectores

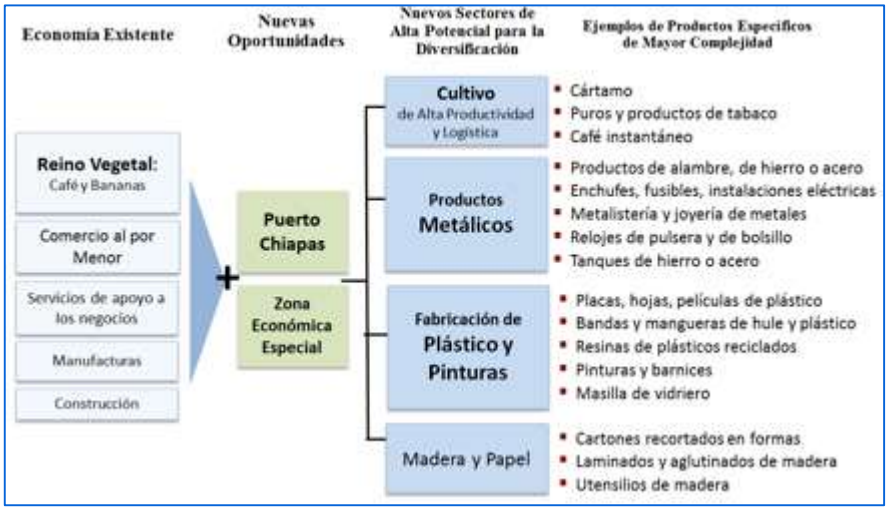
Madera	▪ Marquetería ▪ Madera densificada
Papel	▪ Etiquetas de papel y cartón ▪ Libros de registro ▪ Vajillas y utensilios de plástico
Metales	▪ Barras de hierro/acero sin alear ▪ Alambres de hierro o acero ▪ Alambres de púas
Alimentos preparados	▪ Pasta ▪ Preparación homogeneizada de vegetales ▪ Aguas con sabor o endulzadas
Textiles	▪ Tejido de punto o ganchillo ▪ Tejidos estrechos ▪ Tejidos de algodón ▪ Calzados impermeables

(Source: Harvard CID, 2015)

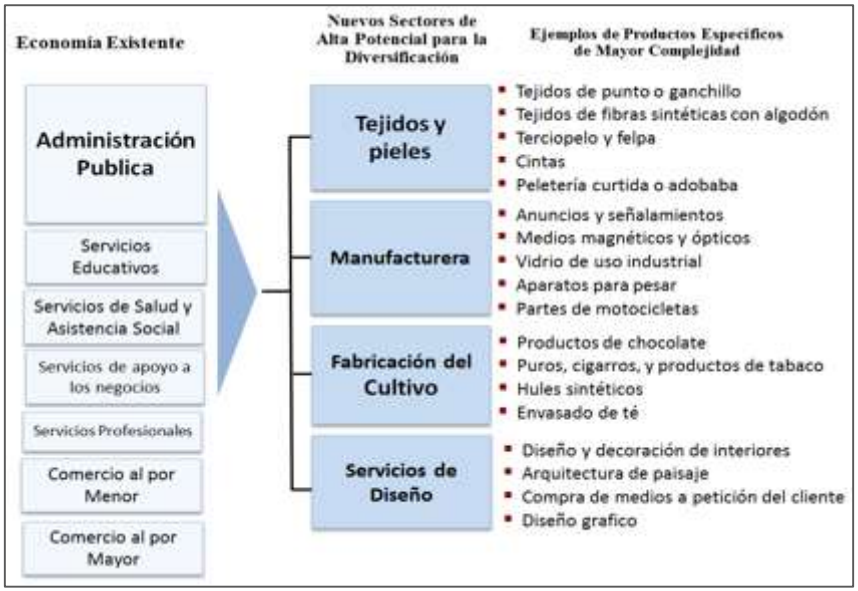
Opportunity Products in the four major urban areas in Chiapas according to the Economic Complexity Analysis…

(Source: Harvard CID, 2015)

TAPACHULA



TUXTLA



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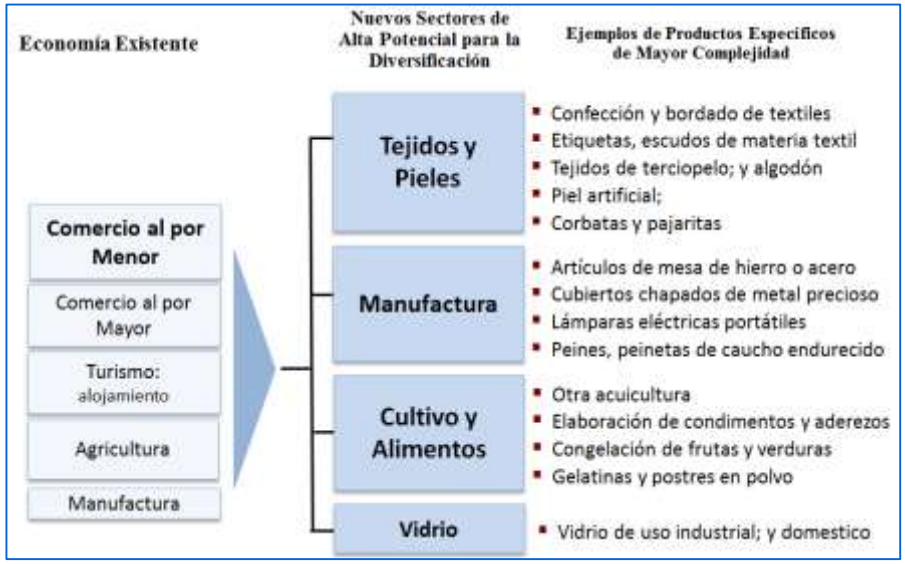


SAN CRISTOBAL

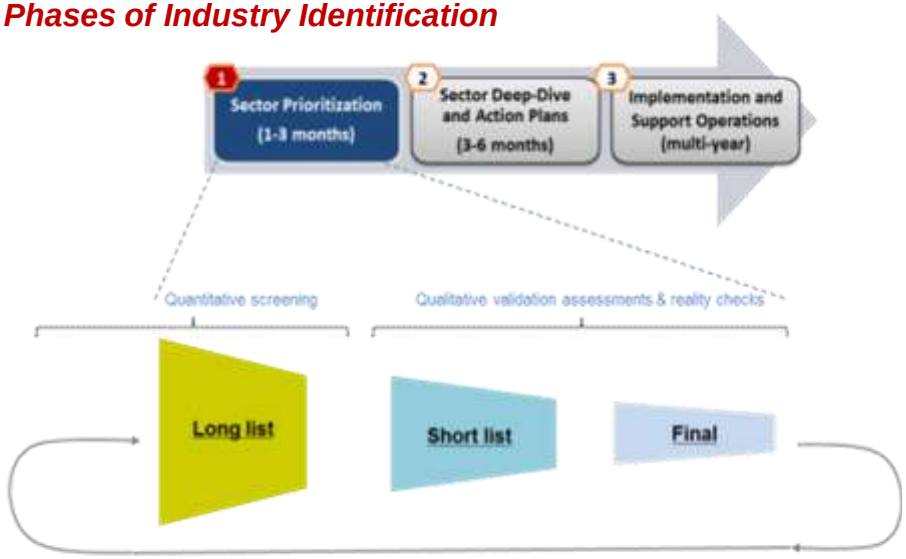
Industry Identification and Policy Alternatives.

Overview: Industry Identification Process

*There are not ineherently '**right**' or '**wrong**' industries, but only **GOOD** or **BAD** business strategies and policy decisions…*

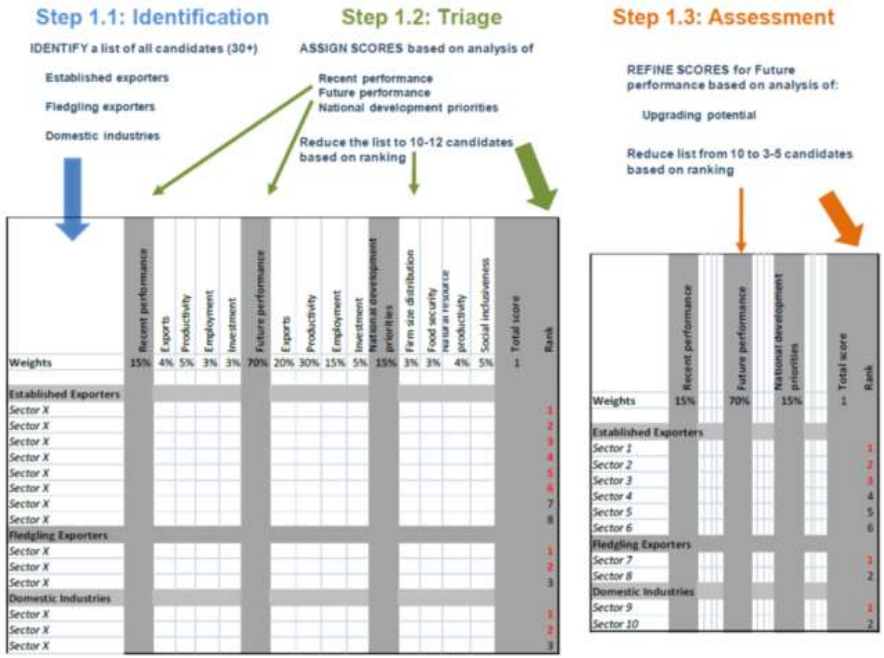
*…the goal of the Industry Identification & Competitiveness Assessment Exercise is to provide an **Evidence-Based** Policy Prioritization Mechanism…*

Phases of Industry Identification



Industry identification is a reiterative process based on data, tools, and field visits

Matriz de evaluacion de competitividad (CAM)



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Chiapas Matriz de evaluacion de competitividad (CAM)

Industries in Chiapas	Number of Close-by Products + Global Demand				Future Performance	Employment + Exports + Product Complexity + Contribution to State GDP								Current Performance	Overall Score
Products (CID recommendations in bold)	**Close-by Products with Higher Complexity**	Standardized	**Global Demand (USD Bln)**	Standardized	**Expected Performance**	**Total Employment**	Standardized	**Exports (USD Mln)**	Standardized	**Product Complexity**	Standardized	**Contribution to State GDP**	Standardized	**Current Performance**	**Overall Score**
MADERA	3.00	-0.22	36.20	-0.22	**-0.43**	1,259.00	-0.88	4.20	-0.34	-1.13	-0.15	0.00	-0.98	**-2.35**	**-2.79**
PAPEL	3.00	-0.46	6.10	-0.31	**-0.77**	375.00	-1.09	0.00	-0.36	1.71	2.24	0.00	-0.99	**-0.20**	**-0.97**
METALES	2.00	-0.61	39.30	-0.21	**-0.82**	4,261.00	-0.16	0.50	-0.36	0.86	1.53	0.00	-0.95	**0.06**	**-0.76**
TEXTILES	15.00	1.31	2.29	-0.32	**0.99**	4,429.00	-0.12	0.80	-0.36	-1.24	-0.25	0.00	-0.97	**-1.70**	**-0.71**
OIL & GAS	3.00	-0.46	1,840.00	5.23	**4.77**	4,914.00	-0.01	854.00	5.15	-3.86	-2.46	0.45	17.44	**20.13**	**24.90**
ALIMENTOS PREP.	1.00	-0.76	34.10	-0.22	**-0.98**	18,270.00	3.18	34.60	-0.14	1.07	1.71	0.02	-0.28	**4.47**	**3.49**
Animal food	1.00	-0.76	25.50	-0.25	**-1.01**	242.00	-1.12	4.38	-0.33	-0.08	0.73	0.00	-0.90	**-1.63**	**-2.64**
Granos, aceites	1.00	-0.76	35.00	-0.22	**-0.98**	380.00	-1.09	3.70	-0.34	-0.86	0.07	0.00	-0.92	**-2.27**	**-3.25**
Dulces	26.00	2.94	30.60	-0.23	**2.70**	1,537.00	-0.81	4.13	-0.34	-0.28	0.56	0.00	-0.91	**-1.49**	**1.21**
Pan	26.00	2.94	30.60	-0.23	**2.70**	11,652.00	1.60	5.73	-0.33	-0.28	0.56	0.00	-0.87	**0.97**	**3.67**
Lacteos	20.00	2.05	9.10	-0.30	**1.75**	1,236.00	-0.88	3.84	-0.34	-0.01	0.79	0.00	-0.91	**-1.34**	**0.41**
Carne	5.00	-0.17	20.90	-0.26	**-0.43**	1,019.00	-0.94	2.52	-0.35	-0.21	0.62	0.00	-0.94	**-1.60**	**-2.03**
Otros Alimentos	1.00	-0.76	34.10	-0.22	**-0.98**	2,304.00	-0.63	10.14	-0.30	0.06	0.85	0.01	-0.78	**-0.86**	**-1.84**
Pesca	5.00	-0.17	21.80	-0.26	**-0.43**	246.00	-1.12	0.00	-0.36	-1.00	-0.05	0.00	-0.99	**-2.52**	**-2.95**
Cafe	3.00	-0.46	28.30	-0.24	**-0.71**	1,211.00	-0.89	133.37	0.50	-2.43	-1.25	0.00	-0.79	**-2.44**	**-3.14**
Platano	2.00	-0.61	12.00	-0.29	**-0.90**	10,200.00	1.26	82.60	0.17	-2.87	-1.63	0.01	-0.66	**-0.85**	**-1.76**
Tomate	4.00	-0.32	8.99	-0.30	**-0.62**	3,000.00	-0.46	4.20	-0.34	-1.17	-0.19	0.00	-0.94	**-1.92**	**-2.54**
Palma de aceite	2.00	-0.61	35.80	-0.22	**-0.83**	11,000.00	1.45	0.00	-0.36	-2.07	-0.95	0.00	-0.88	**-0.74**	**-1.58**
Miel	1.00	-0.76	2.02	-0.32	**-1.08**	8,000.00	0.73	2.70	-0.34	-0.89	0.05	0.00	-0.96	**-0.52**	**-1.60**
Mango	2.00	-0.61	2.03	-0.32	**-0.93**	6,960.00	0.48	26.00	-0.19	-2.06	-0.94	0.00	-0.89	**-1.54**	**-2.47**
Cacao	3.00	-0.46	10.90	-0.29	**-0.76**	11,202.00	1.50	0.00	-0.36	-3.14	-1.85	0.00	-0.93	**-1.65**	**-2.41**

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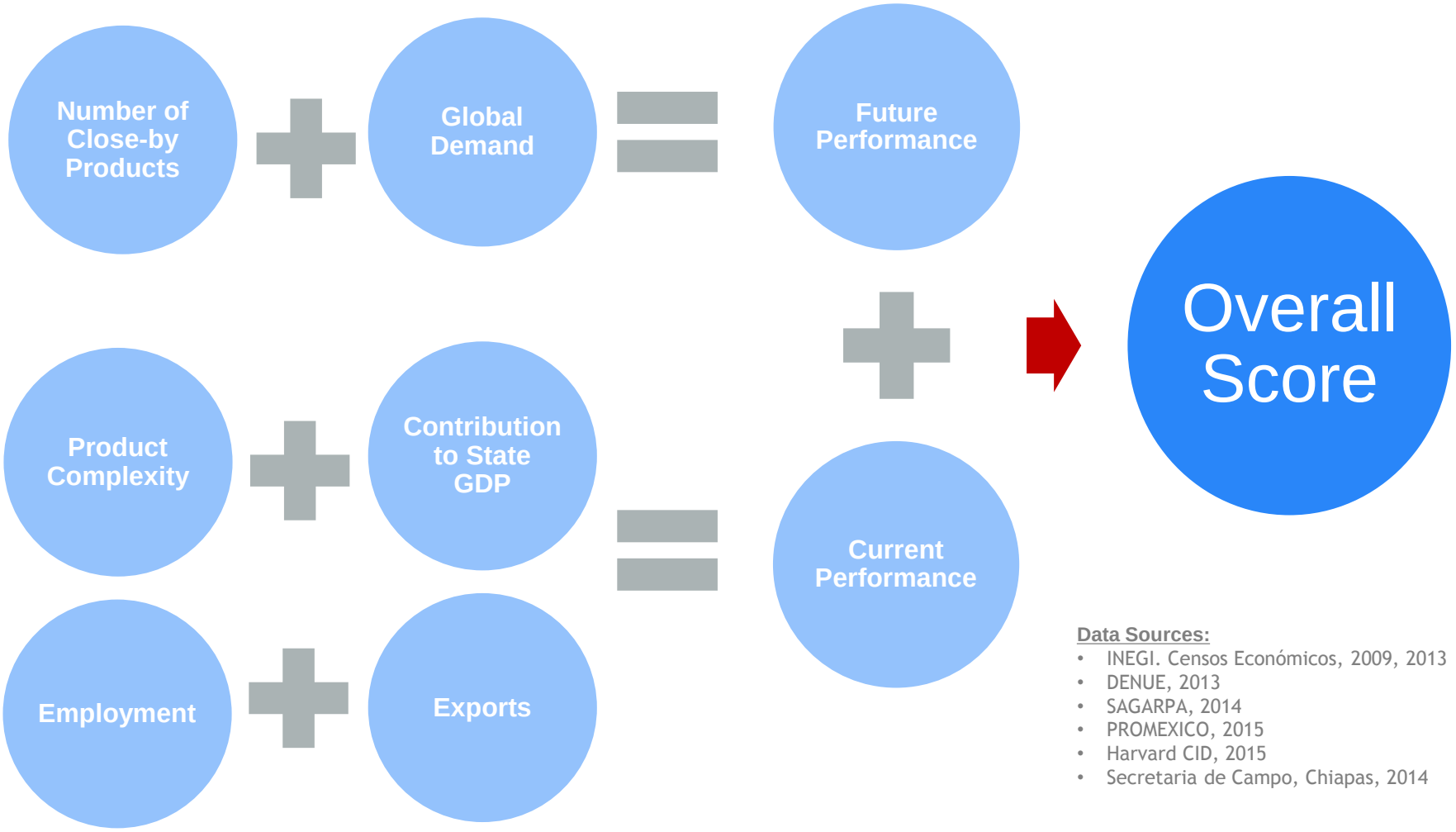
How is the CAM for Chiapas built?

Model and Variables used for each Industry/Product:



Data Sources:

- INEGI. Censos Económicos, 2009, 2013
- DENUE, 2013
- SAGARPA, 2014
- PROMEXICO, 2015
- Harvard CID, 2015
- Secretaria de Campo, Chiapas, 2014

Each variable is standardized. A sensitivity analysis is conducted by assigning different weights to each variable according to varying policy priorities.

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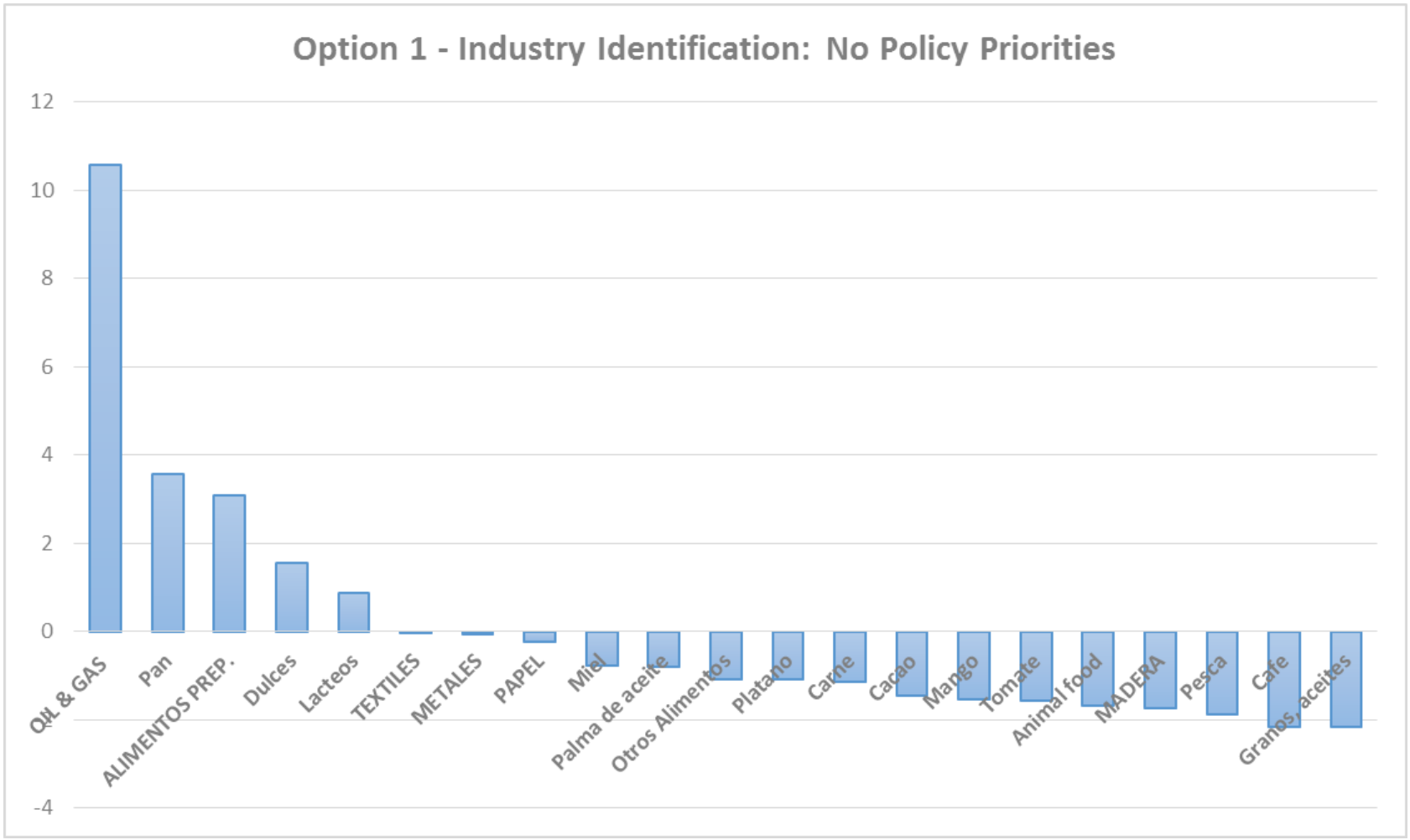
Option 1 – Industry Scores with No Policy Priorities



Overall score for each industry using standardized variables.

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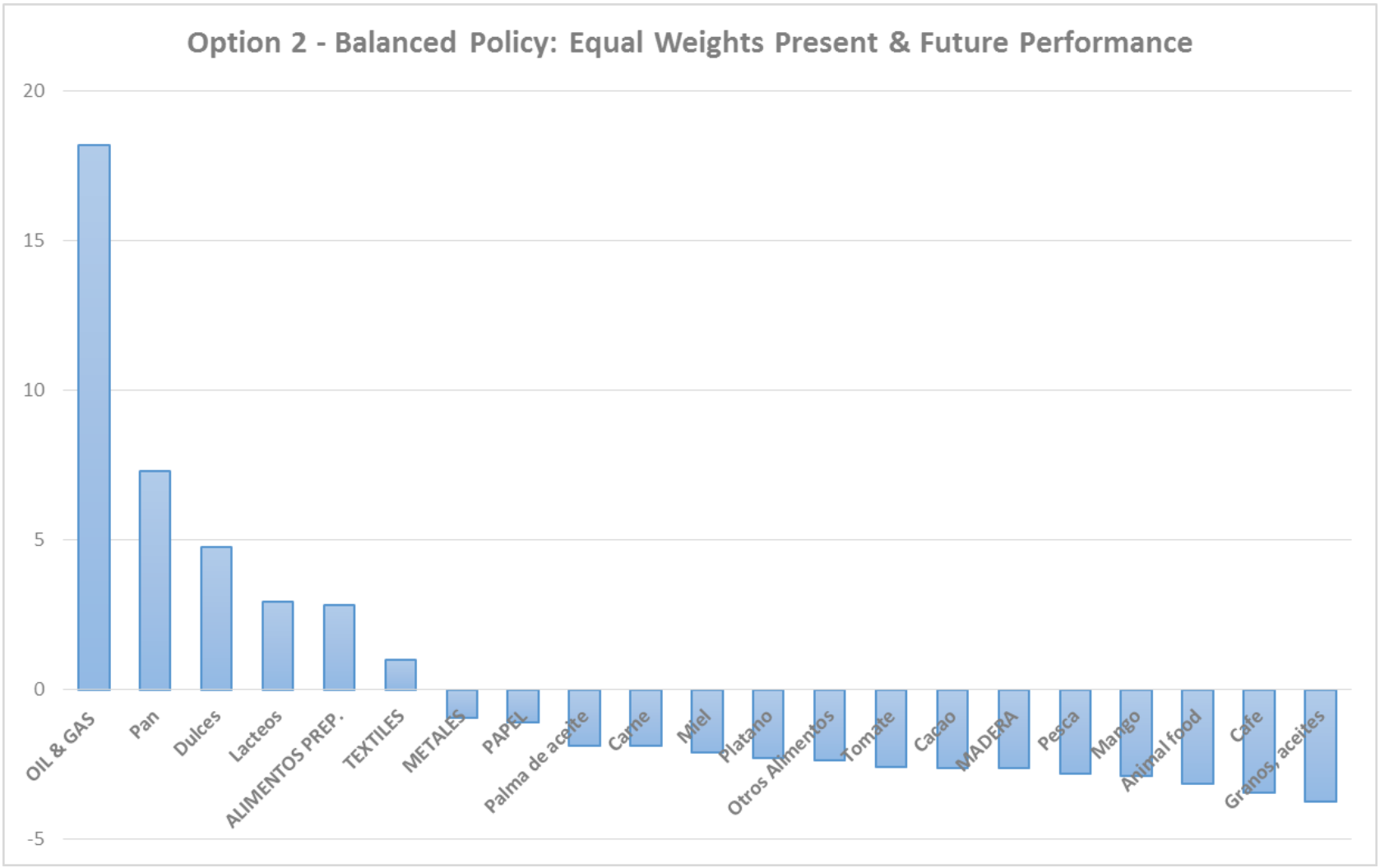
Option 2 – Industry Scores with Equal Importance to their Present and Future Performance



Overall score for each industry using standardized variables.

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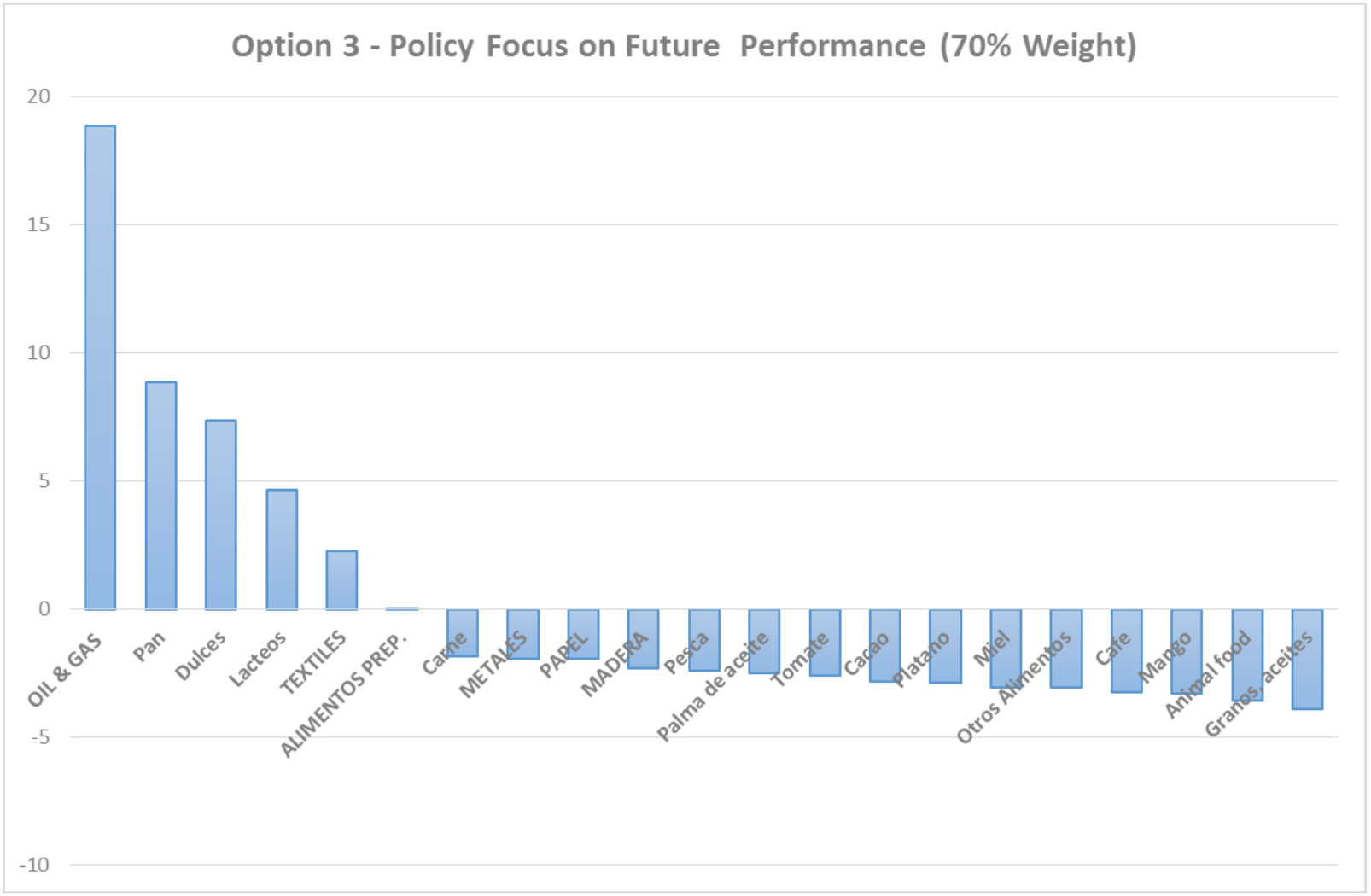
Option 3 – Policy Focus on the Future Performance of Industries



Overall score for each industry using standardized variables.

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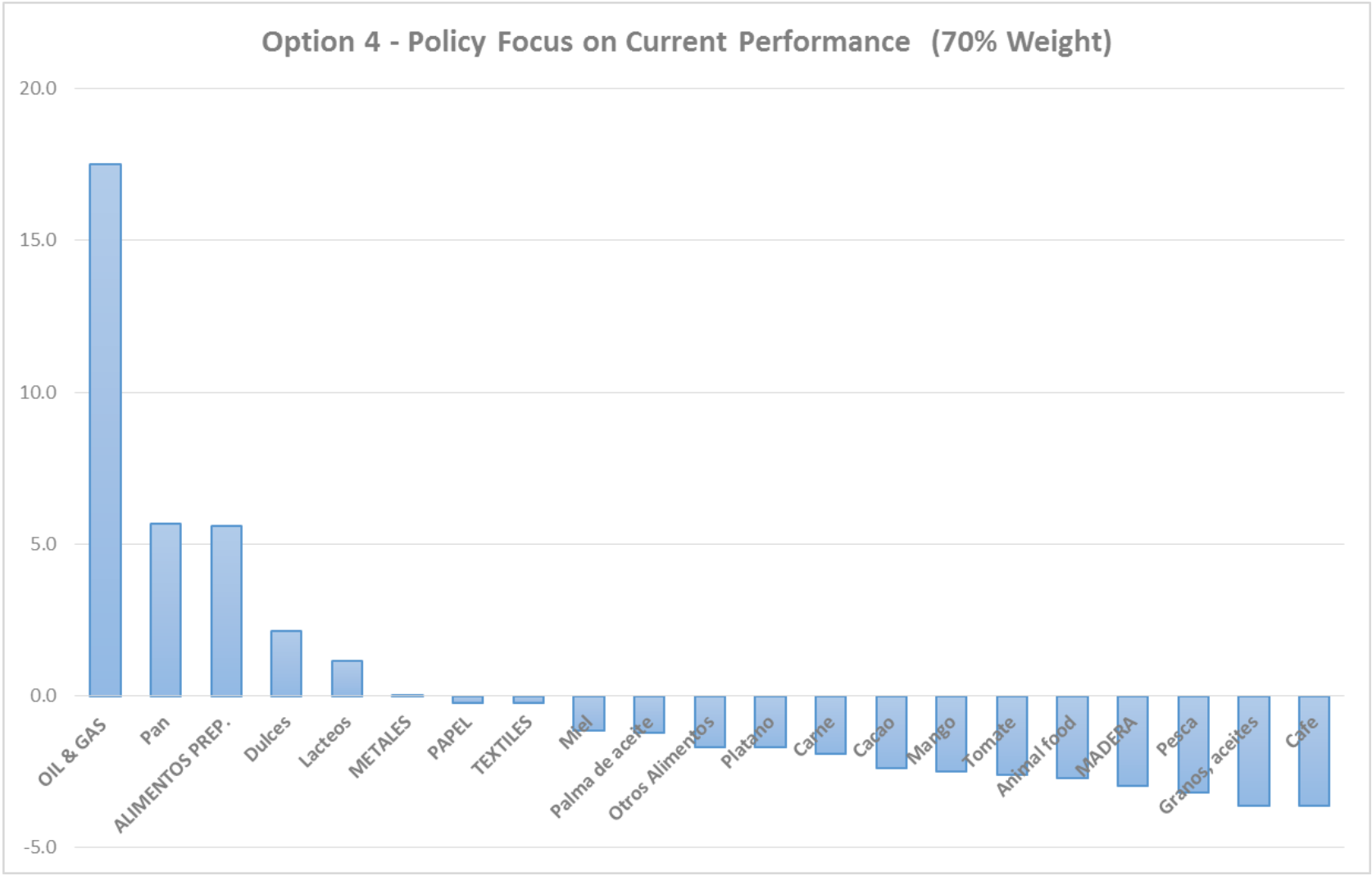
Option 4 – Policy Focus on the Present Performance of Industries



Overall score for each industry using standardized variables.

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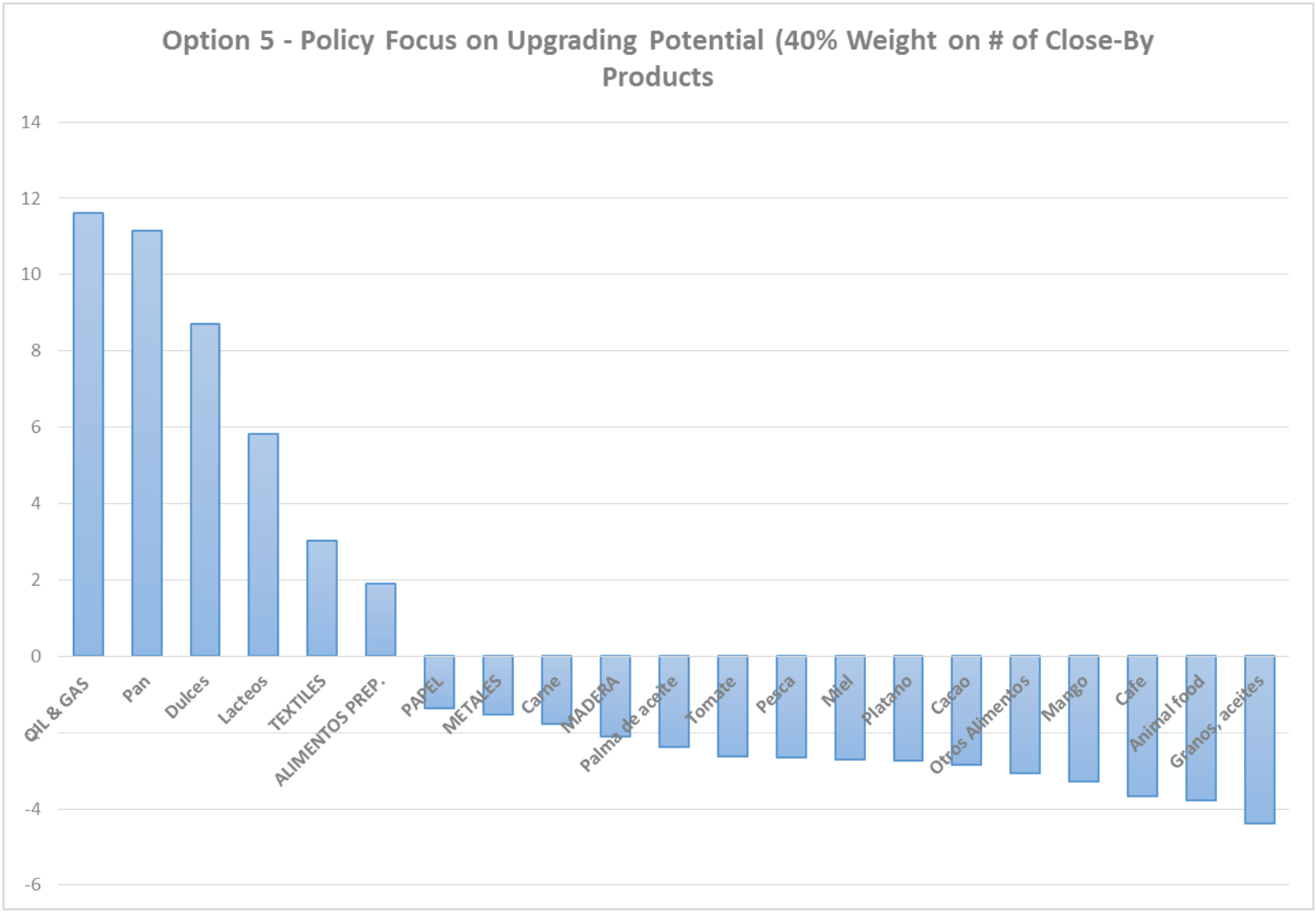
Option 5 – Policy Focus on the Upgrading Potential of the Industries



Overall score for each industry using standardized variables.

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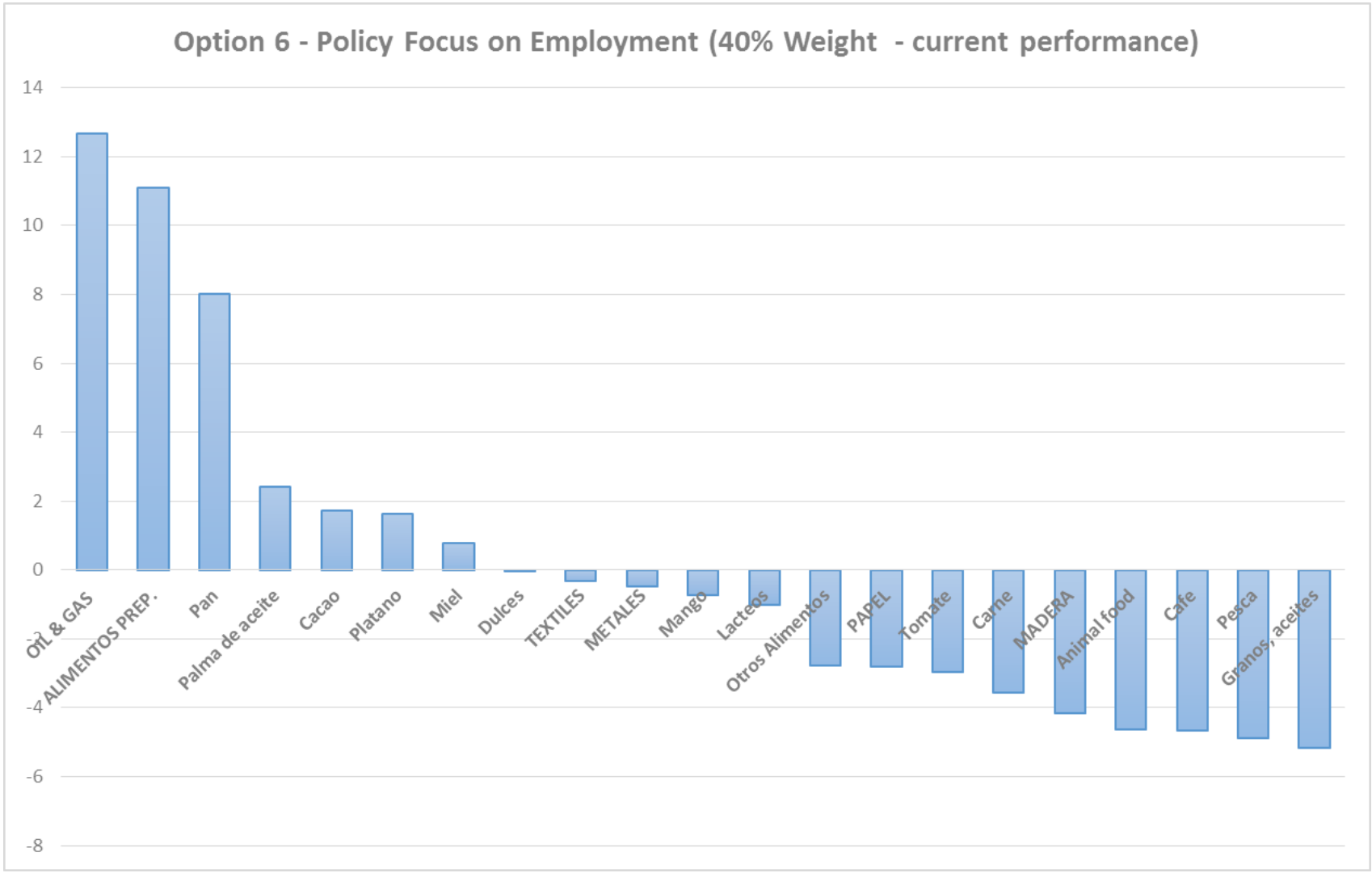
Option 6 – Policy Focus on Current Employment Levels



Overall score for each industry using standardized variables.

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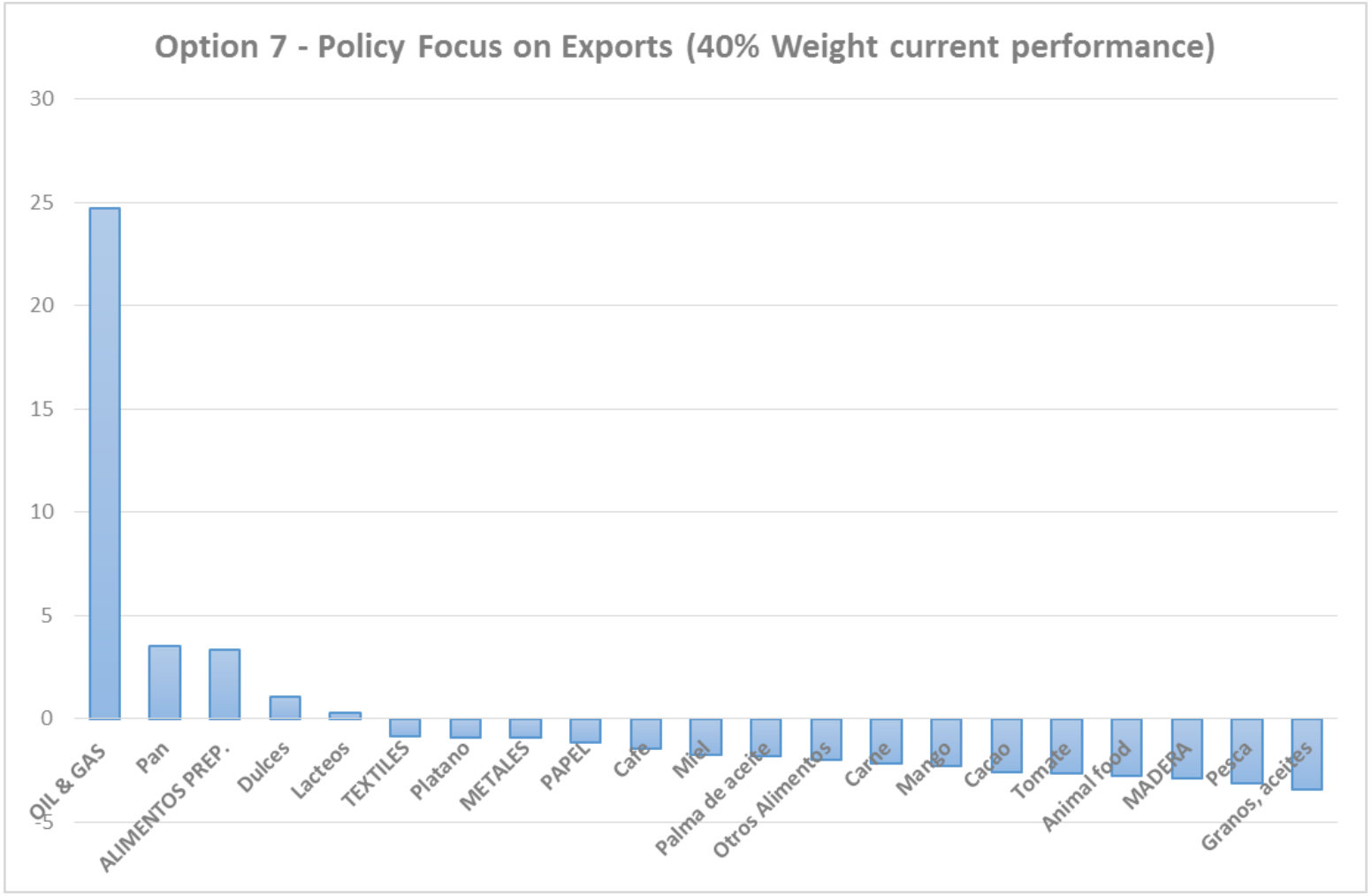
Option 7 – Policy Focus on Current Exports



Overall score for each industry using standardized variables.

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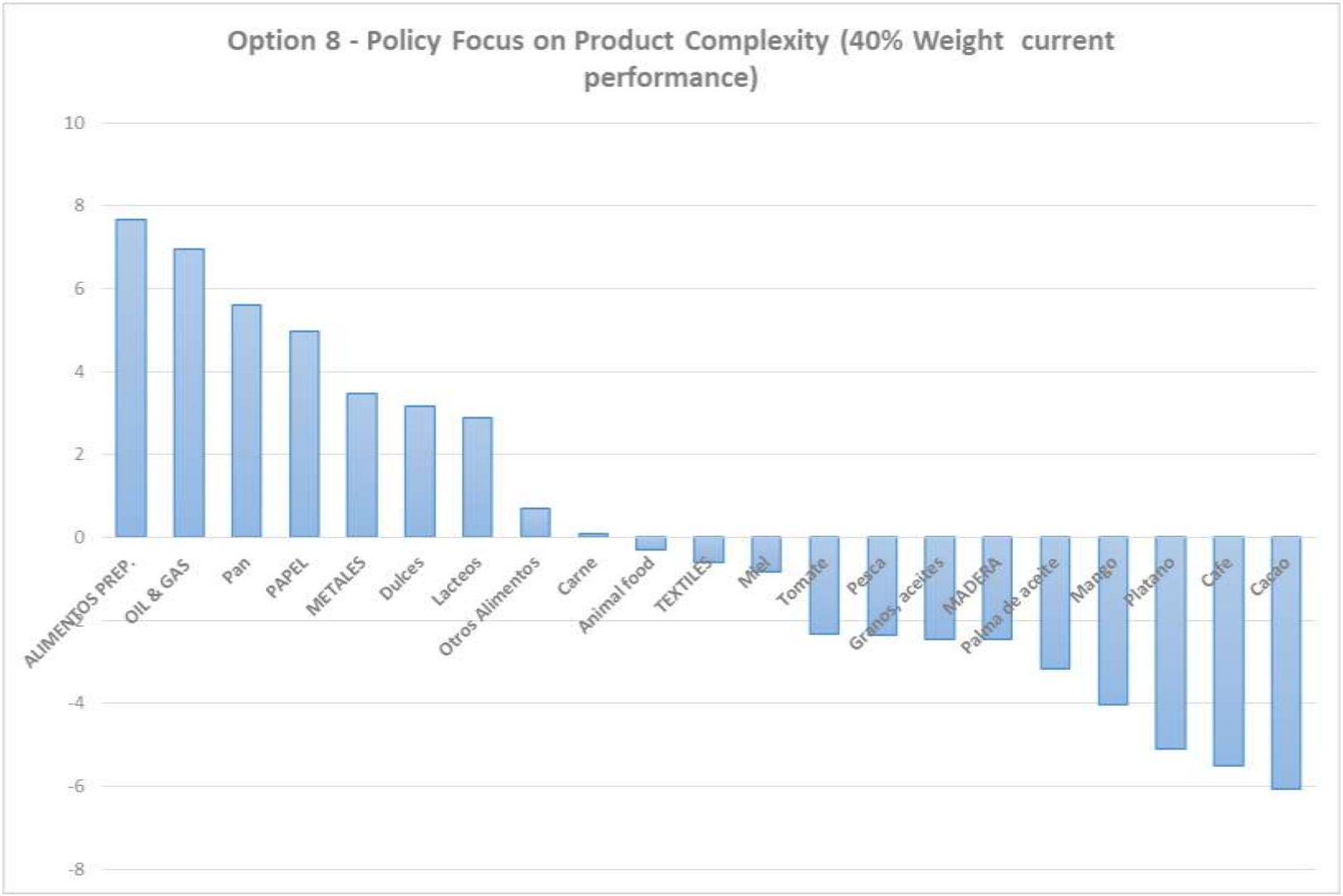
Option 8 – Policy Focus on Leveraging the Existing Level of Product Complexity in Chiapas



Overall score for each industry using standardized variables.

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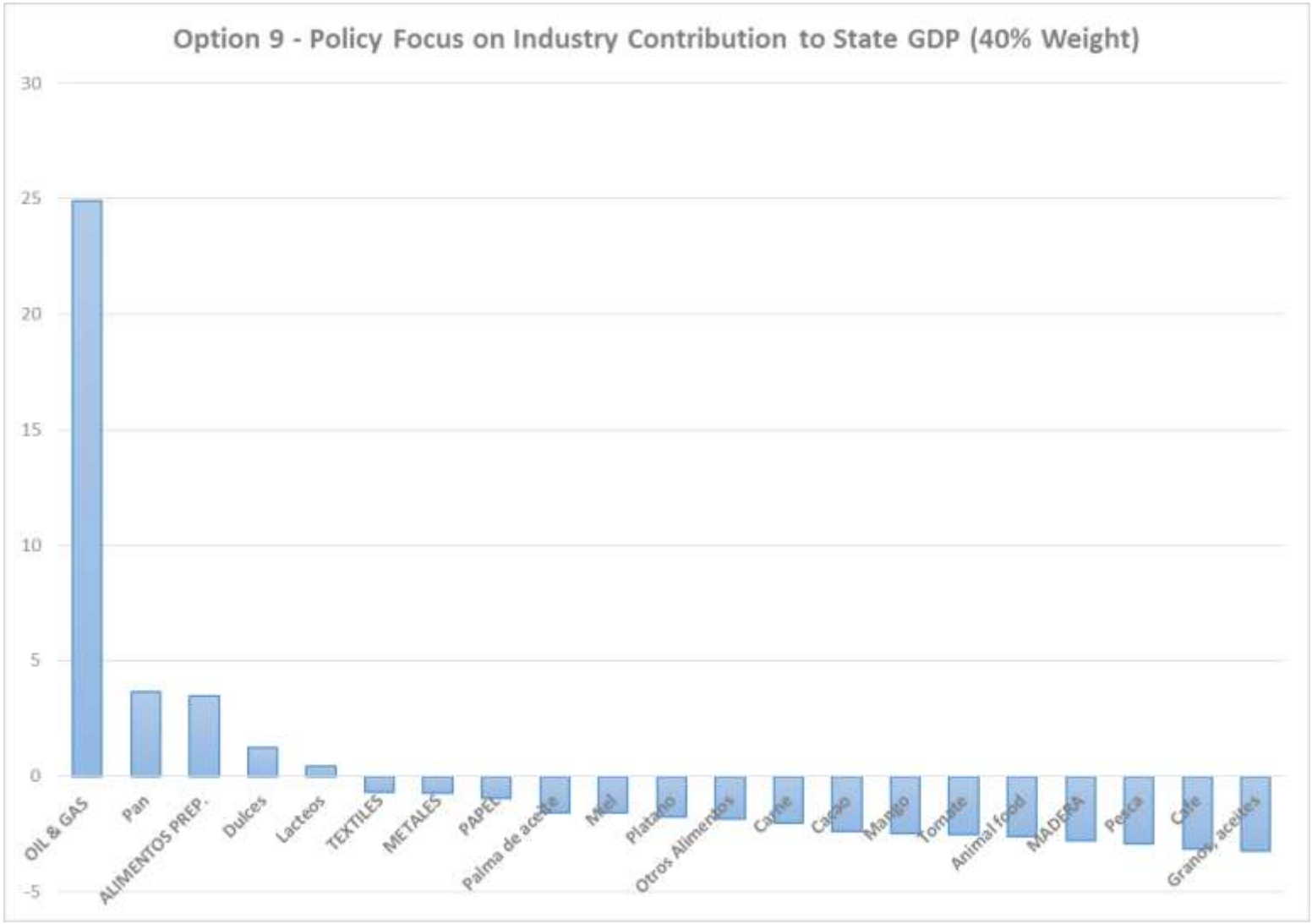
Option 9 – Policy Focus on the Industries with the Greatest Contribution to State GDP



Overall score for each industry using standardized variables.

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Preliminary observations on the results of the Industry Identification exercise…

- There are not ‘right’ or ‘wrong’ industries, but only policy trade-off decisions to be taken…
- The analysis relies exclusively on quantitative data to provide an evidence-based framework for the policy debate…
- In the case of Chiapas there are some changes in the rankings of industries and products depending on whether the focus is on maintaining the current levels of employment, or supporting economic diversification, or technological upgrading within existing industries, etc…
- However, the overall picture seems consistent in terms of increasing the sophistication of agricultural-related industries and food-processing, and identifying the appropriate strategic segments in manufacturing depending on what are the short-term employment generation and long-term technological upgrading policy priorities for Chiapas…
- Once policy priorities are agreed upon, then there is need to gain an in-depth understanding of the competitive dynamics and relevant strategic segments for the industries and value chains that have been identified…

Industry Analyses.
What does it take to compete?

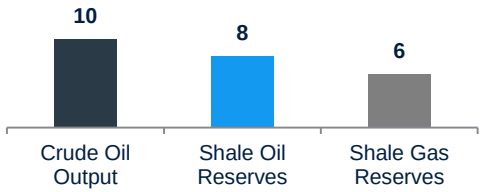
Oil and Gas

Oil & Gas Industry Overview in Mexico

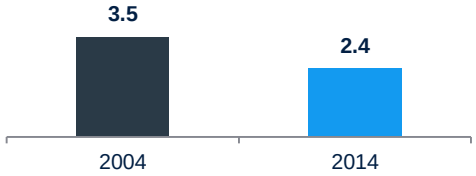
CONTEXT OVERVIEW

- **Mexico is one of the global leading O&G producer yet facing a structural decline in output**:
  - World's 10th biggest crude producer
  - 30% public budget coming from O&G revenues
  - Output declined from 3.5 to 2.4mboe/d in 10 years
  - Underinvestment in E&P & O&G infrastructure
  - Country risks to become net importer

Mexico ranking globally, #



Oil production, mboe/d



- **Mexico's groundbreaking Energy Reform passed in 2013 is aimed to tackle this structural issue:**
  - Unprecedented market liberalization
  - Tenders of conventional & unconventional resources
  - Private investment opportunity across value-chain
  - Objective to raise output to 3.5mboe/d by 2025

UPSTREAM

Contracts

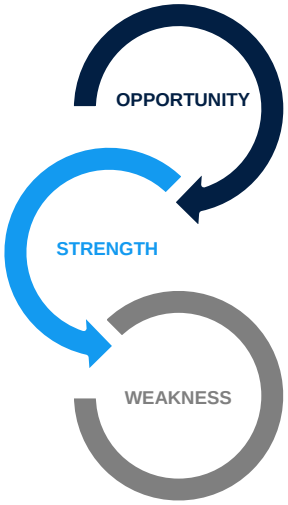
1. Production-sharing
2. Profit-sharing
3. Licenses
4. Services

DOWNSTREAM

Permits

1. Refining
2. Gas processing
3. Transport, storage & distribution
4. Petrochemicals

MARKET OPPORTUNITIES



UPSTREAM	MIDSTREAM	DOWNSTREAM
Historic market liberalization Opening rounds being put together Pemex's strategic mutation Expected farm-out of selected assets	Significant transportation & storage infrastructure deficit US$13bn pipelines tendered in 2015-16 US$7bn required in O&G storage	OFS ripe for consolidation O&G services sector is fragmented Investment to bolster petrochemicals Stagnant growth due to dearth of invest.
Volatile market environment Negative impact on entrants' appetite forcing GoM to push back some tenders Uncertainty in the bidding process	Low returns Need for scale and large capital deployments to deliver	Volatile market environment Squeeze on service operators Dependence on Pemex

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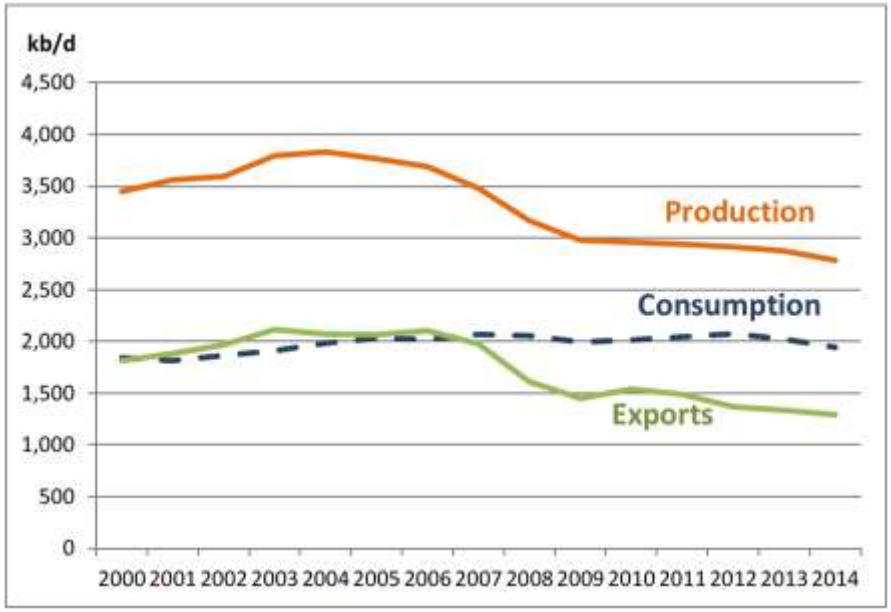
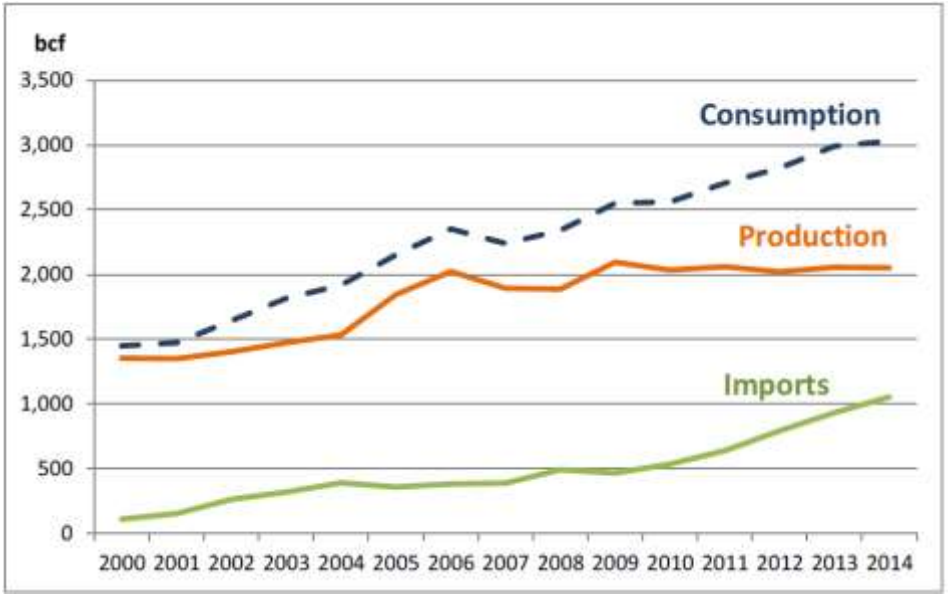
Oil & Gas in Mexico: Production, Consumption, and Trade Trends

Mexico Oil Production, Consumption, And Exports - 2000- 2014



Source: *BP Statistical Review of World Energy 2001-2015.*
Notes: Units = thousand barrel per day (kb/d).

Mexico Natural Gas Production, Consumption, And Imports - 2000- 2014



Source: *BP Statistical Review of World Energy 2001-2014.*
Notes: Units = billion cubic feet (bcf).

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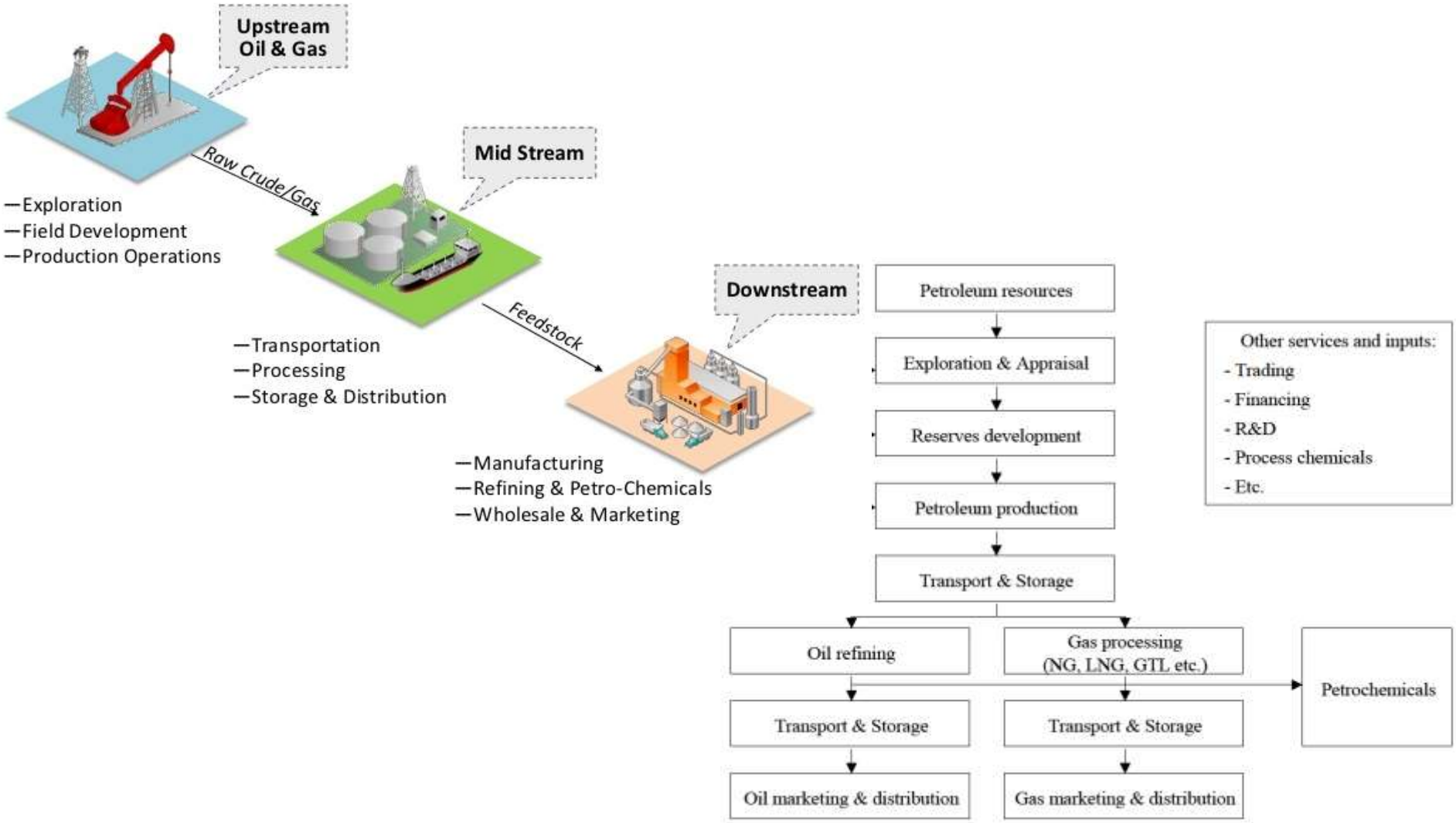
Oil & Gas Ideal Value Chain



(Source: Tordo, World Bank, 2010)

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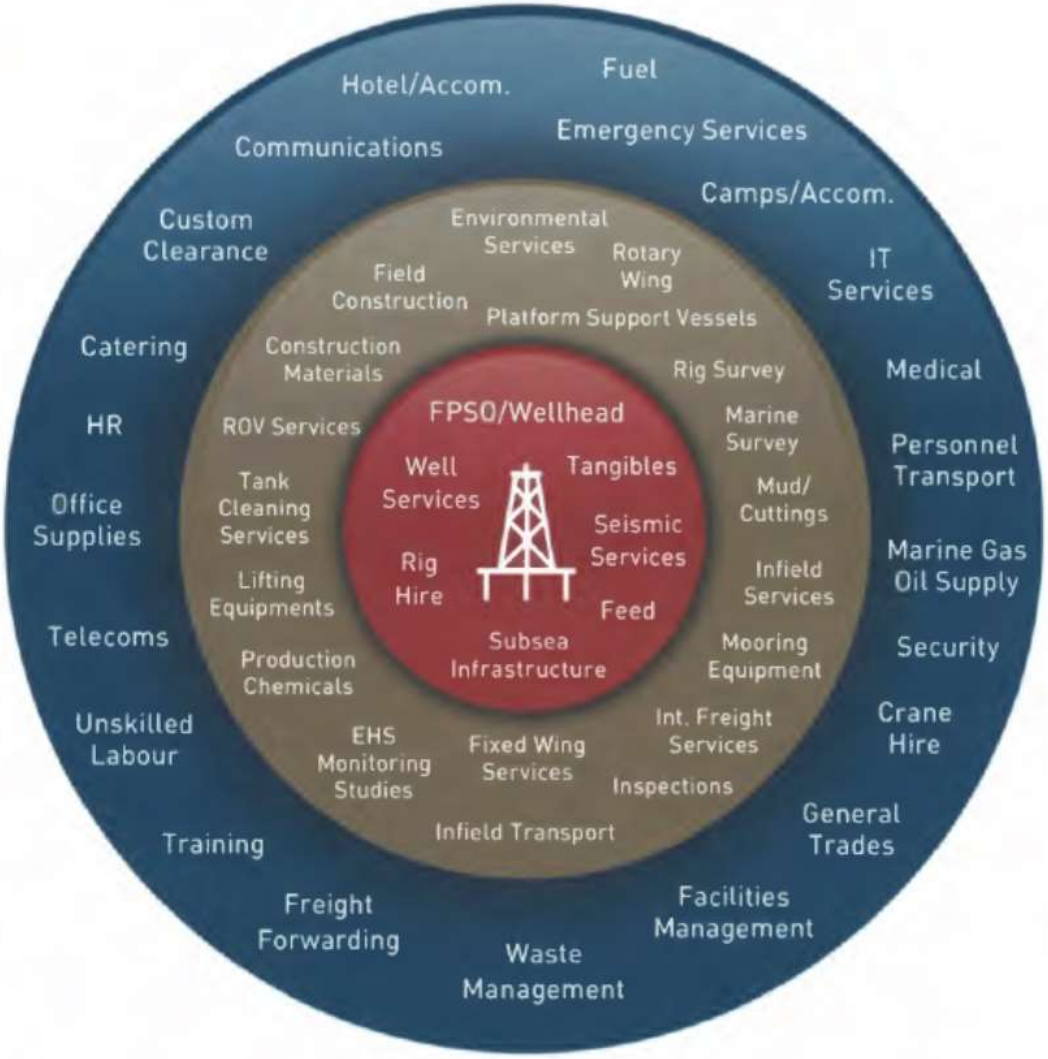
Upgrading Opportunities in the Ideal Oil & Gas Value Chain



(Source: Tullow Oil)

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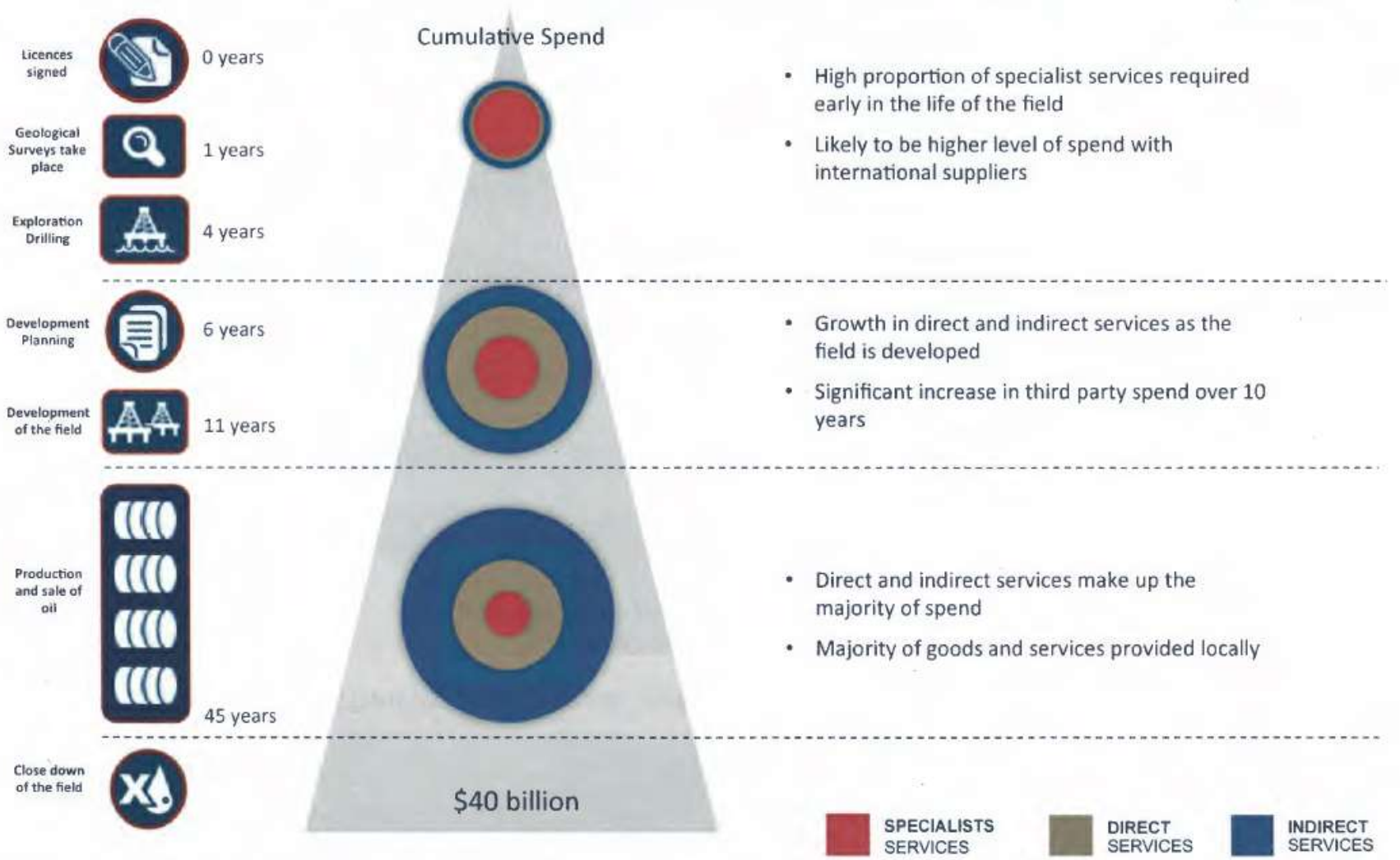
Upgrading Opportunities through the life of an Oilfield



(Source: Tullow Oil)

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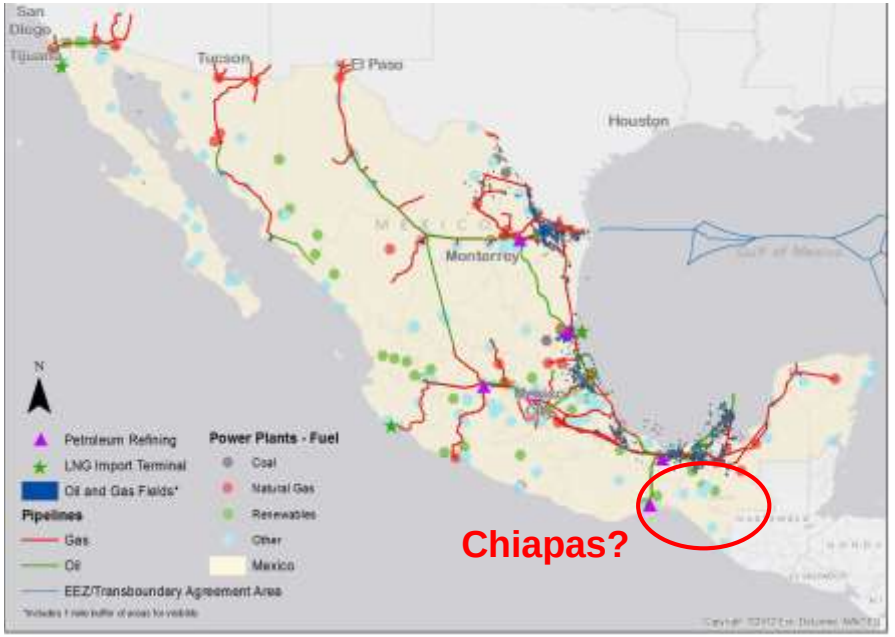
How can Chiapas upgrade in the Oil & Gas Value Chain?

Oil & Gas Installations and Energy Infrastructure in Mexico



Legend: Blue = petrochemical complex; Oil tower = upstream oil and gas production; Green = refineries

(Source: Compiled by CRS using data from IHS, Platts, and Esri. Date: September 2013.)

Next Steps

- **Program:** Mexico Extractives Value Chain Analysis: Strategic Positioining
- **Objective:** identify opportunities and strategies to facilitate the development of local industries related to the Oil & Gas value chain in Mexico
- **Activities:** 1) Strategic Segmentation of the Oil and Gas Industry; 2) Strategic analysis and Competitive Positioning of up to three segments; 3) Cluster-level Action Plans and Policy Design.
- **Partners**: Consejo Consultivo para el Fomento de la Industria de Hidrocarburos, Secretaria de Economia, Secretaría de Hacienda (SCHP), Secretaria de Energia (SENER), World Bank Group

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Manufacturing – Overview.

Manufacturing Industries Overview in Mexico

CONTEXT OVERVIEW

- **Automotive Sector.**
  - World's 8th largest vehicle producer worldwide
  - 80% of Mexico's total auto production is exported.
  - Automotive and Auto parts represents 16.7% of GDP.
  - Mexico's production of light vehicles reached 3.1m in 2014 and it is expected to reach 4.5m in 2019.
  - During 2014, Mexico was the 6th largest producer of auto parts in the world.
- **Chemicals Sector.**
  - The recent reforms will increase investments in the chemicals sector for private companies in Mexico.
  - The petrochemical industry accounts for nearly 12% of manufacturing.
  - 2013 imports of chemicals reached US24.5bn. Mexican companies could benefit from enhanced domestic chemical supply capabilities.
  - Mexico is strategically positioned to attract foreign investments from companies seeking to access the Latin American market.
- **Pharmaceutical Sector.**
  - Mexico's pharma industry generates revenues of around US11bn.
  - Generics account for more than 60% or all units sold in the country. As patents expire new products are introduced into the market.
  - There are consolidation opportunities in the market.
  - Some Mexican companies with excess capacity do contract manufacturing.
  - Products are sold through a few large distributors which reach drugstores.
  - The Public Sector represents approx. 50% of total units.
  - COFEPRIS is working on aligning the regulations with the Global standards.
  - There is a recent trend for labs to develop biotechnology products, however the regulation is still in the definition process (e.g. number of clinical trials)

MARKET OPPORTUNITIES

Auto Sector

Chemicals

Pharma

- FDI Global knowledge – best practices.
- Long-term financing.
- Debt and Equity financing solutions.
- Energy Efficiency Investments.
- FDI Stamp of Approval.
- Support on international expansions M&A.

- Small size of firms, some local companies require financing for ~US5m or less.
- Commercial and Development Banks offering very aggressive pricing for financing.
- Some firms look for venture capital for new projects.
- Limited close relationships at global level to provide access to local contacts.
- There are limited financing needs for multinationals locally.

Automotive

Automotive Industry: Global Trends

- Rates of urbanisation and congestion
- Awareness of atmospheric pollution and increase in emissions controls
- Ever more stringent crashworthiness and safety requirements
- Emphasis has shifted to information technology
- Product lifecycle is evolving

Automotive Industry: Strategic Segmentation

		DENSE / URBAN / CITY ENVIRONMENT (OF THE NEAR FUTURE)	SPRAWLING / RURAL / SPARSELY POPULATED
Movement of People	Individual	*Strategic Segment 1*	*Strategic Segment 2*
	Groups	*Strategic Segment 3*	*Strategic Segment 4*
		INTRACITY	**INTERCITY**
Movement of Merchandise	Light	*Strategic Segment 5*	*Strategic Segment 6*
	Heavy		*Strategic Segment 8*

Each strategic segment has its own distinct ***ideal*** value chain….

These ***ideal*** value chains are ***not country specific.***

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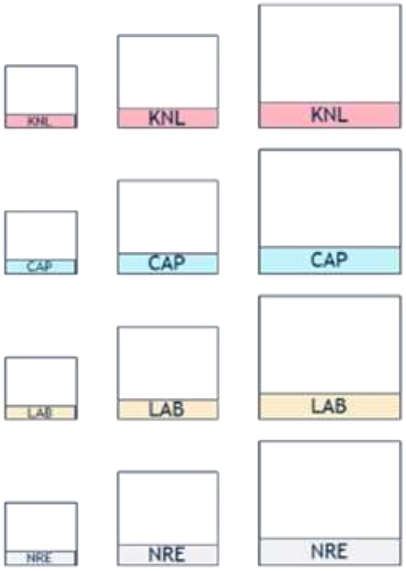
Defining Value Chain Activities and Type of Linkages

- Value Chain Activities by resource intensity and EOS (batch size)



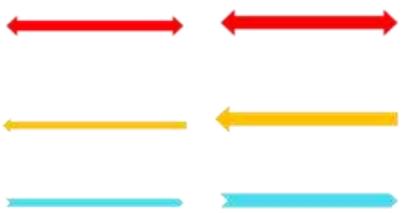
Knowledge Intensive VC Activities
Low (<X staff) - Medium (X-Y) - High (>Y)

Capital Intensive VC Activities
Low (<X investment) - Medium (X-Y) - High (>Y)

Labor Intensive VC Activities
Low (<X% labor cost) - Medium (X-Y) - High (>Y)

Natural Resources and Energy Intensive VC Activities
Low (<X% input cost) - Medium (X-Y) - High (>Y)

- Value Chain Linkages by time and information intensity



Just In Time linkage (24-48 hours)
Low information exchange – High Information exchange

Made to order linkage (weeks)
Low information exchange – High Information exchange

On stock linkage (months)
Low information exchange – High Information exchange

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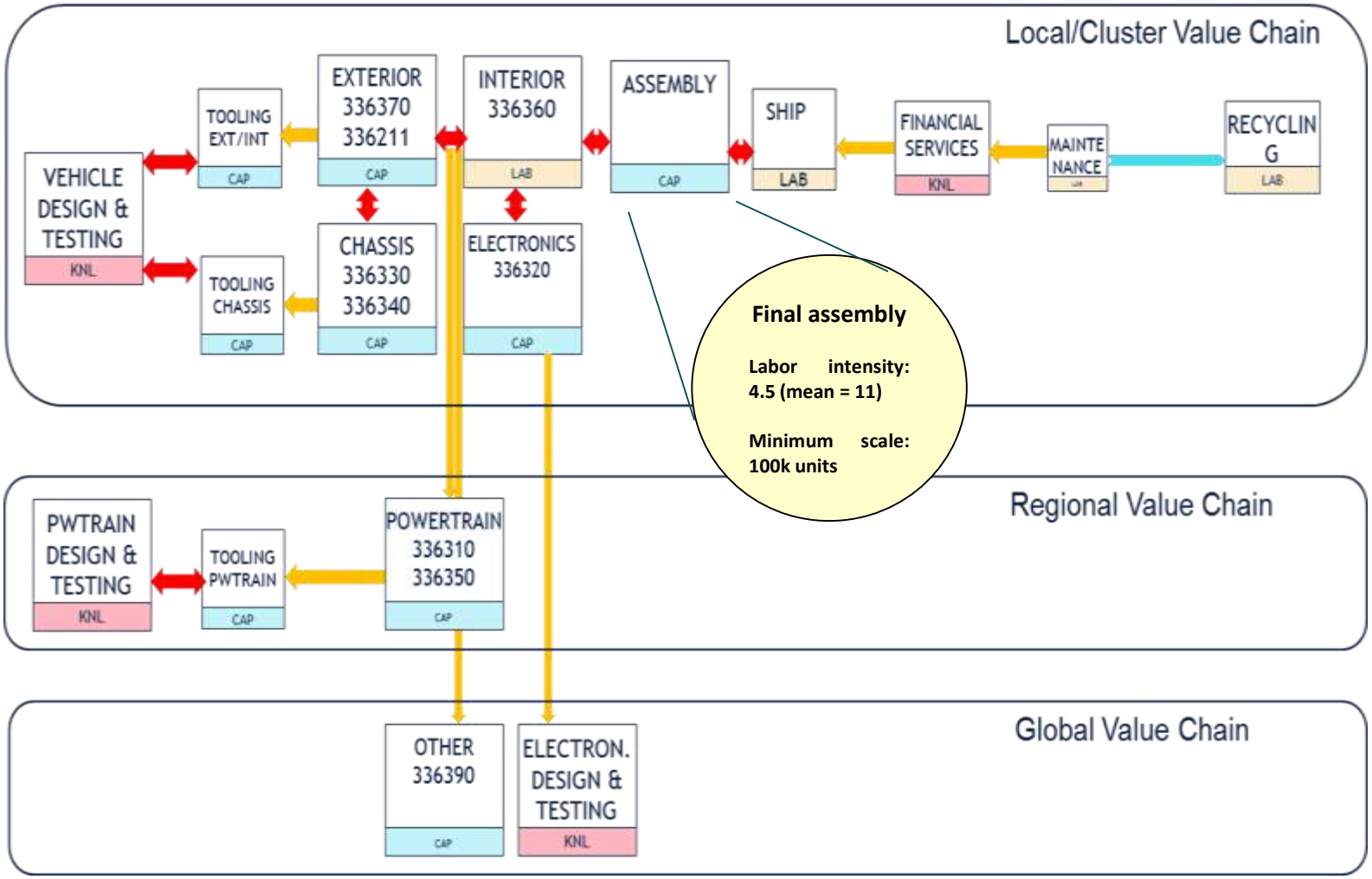
Automotive Ideal Value Chain: Strategic Segment 2 “Toyota Corolla”



Source: World Bank, GVC Project, team calculations based on NAICS 2014.

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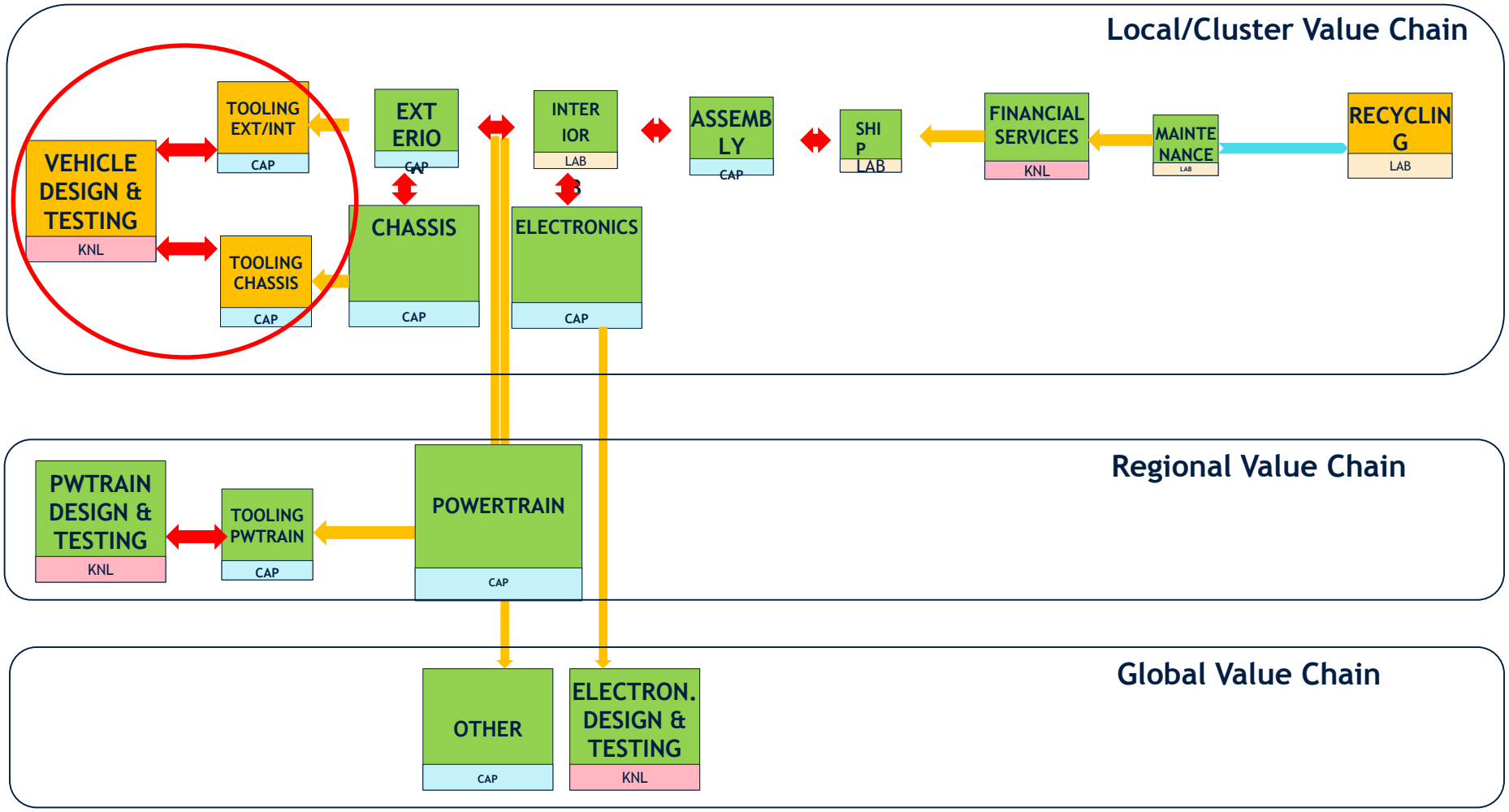
Mexico is well established in the 'Toyota Corolla' segment (2)

Mexico's Position in the Value Chain



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Growth of the Mexican Automotive Industry has been driven by labor flexibility and proximity to the US……

B 1 Automotive industry drivers

RedSeer Consulting Roland Berger Strategy Consultants

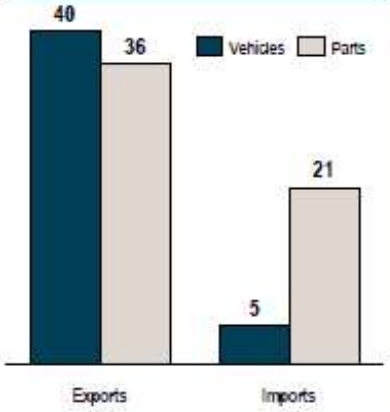
Proximity to the world's second largest automobile market coupled with NAFTA, is a significant advantage for Mexico

US-Mexico trade relations

Proximity to US

Mexico shares 3000 Km border with the US and is also a gateway to Latin America

Automotive Trade with US [2013, USD bn]



In 2013, US accounted for 68% of total light vehicle exports and 90% of auto parts exports

Comments

- NAFTA (Mexico-US-Canada)
  - 62.5% of parts and materials are sourced from North America for autos, light trucks, engines and transmissions and 60% for other vehicles and automotive parts due to elimination of import and export duty
- It costs **USD 5,000** and around **21 days** to ship a container from **China** to the US, compared with **USD 3,000** and **1-2 days** to truck the same freight in from **Mexico**

"Due to proximity to the US border, North and Central regions of Mexico provide significant logistical advantages in supplying auto parts or vehicles and hence are attracting majority of auto sector investments"
- Executive, SANLUIS Rassini North America

Source: Ministry of economy – Mexico, IHS Automotive, Automotive News, RedSeer, Roland Berger

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US investment in the 1980s and 1990s was driven by labor flexibility, more than low costs

OEMs valued Mexicans' willingness to adopt team-based continuous improvement techniques.

Tier 1 suppliers were compelled to follow OEMS by the requirements of just-in-time delivery

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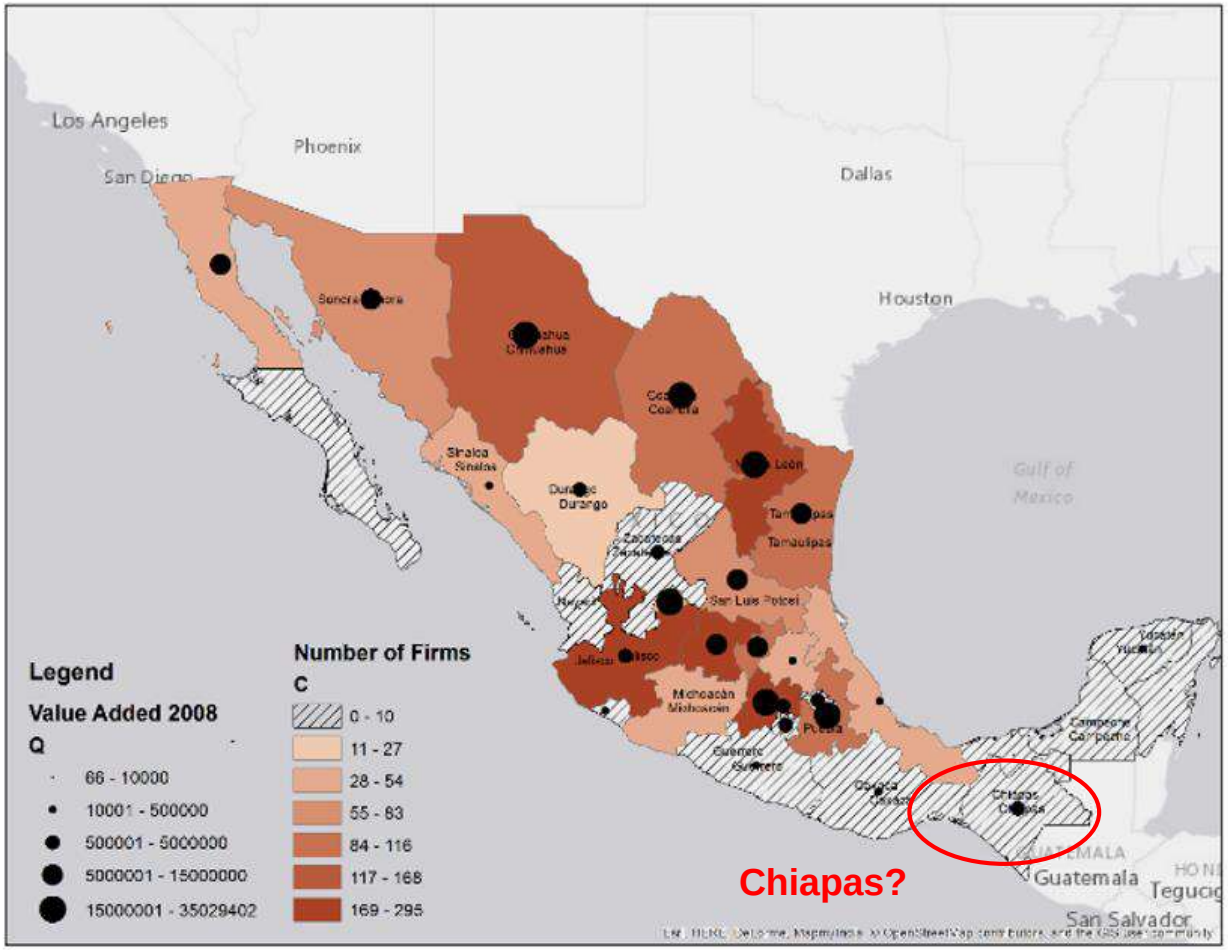
Automotive Industry is Clustered in two Bands… …and Chiapas?

Geographical Distribution of Value Added and Firms in Automotive in Mexico

Northern border: Chihuahua, Coahuila and Nuevo Leon

Centro/Bajio: Mexico City, Guanajuato, Queretaro, Jalisco, Estado de Mexico and Puebla



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There is scope for deepening some functions to close the gap between Tier 1s and local Tier 2s… and to increase R&D capacity…

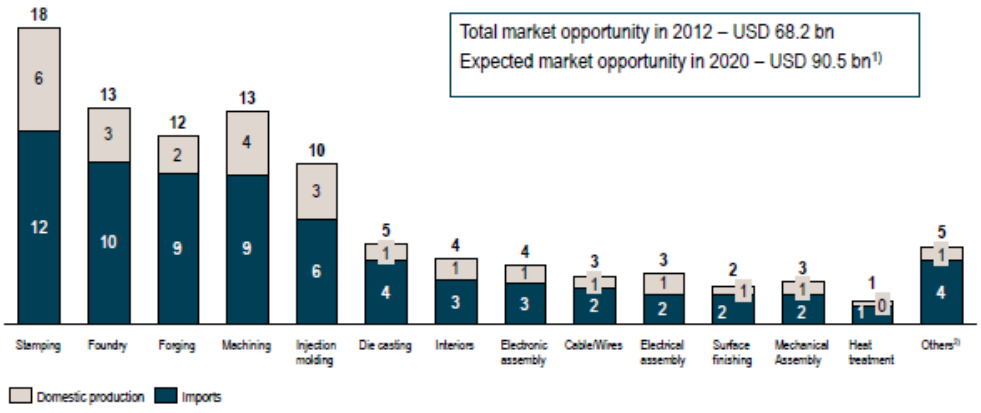
B 2 II Parts supply base

RedSeer Consulting Roland Berger Strategy Consultants

Significant market potential also exists for Tier 2 suppliers through localization of products currently imported into Mexico (1/2)

Tier 2 components – Domestic opportunities

Market potential [USD bn, 2012]



1) Calculated value (using a growth rate of 3.6% from auto parts production forecast)
2) Others include Ceramics, Tubing, Sintering, Extrusion, Fiberglass, Glass, Material dielectric
Source: Ministry of economy – Mexico, RedSeer, Roland Berger

Distribución geográfica de Instalaciones de I&D

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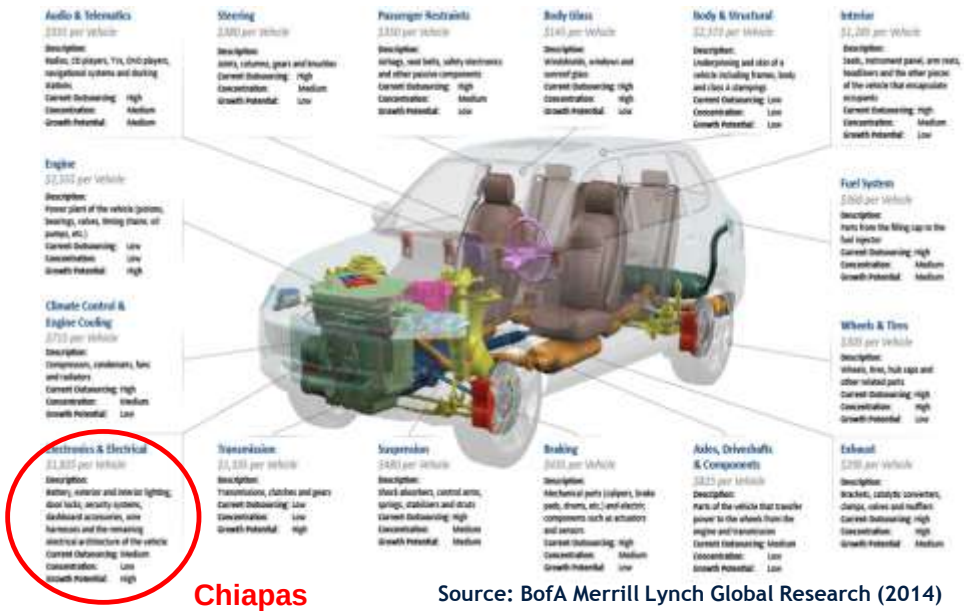
In which strategic segment and phase of the Mexican Automotive Industry is Chiapas currently positioned?

Chiapas is currently positioned in the Electric & Electronics Components Module of the Mexican Automotive VC, with a focus on Wire Harnesses

Electric & Electronics Strategic Segment in Chiapas

- ❑ Yazaky is the largest FDI plant with 6,000 employees in Chiapas
- ❑ Production of wire harnesses for export (80%) and domestic(20%) markets, but in Chiapas is the opposite
- ❑ Low-margin, low-entry-barrier strategic segment
- ❑ Labor-intensive medium-skills-level phase of the VC
- ❑ Limited capital requirements leveraging 20% cheaper labor costs in Chiapas
- ❑ Cost-driven and efficiency seeking competitive dynamics
- ❑ Made-to-order linkages (1-2 weeks lead time) with mid-to-high frequency delivery (5-8 times per week), and 48 hrs max transport radius



Source: BofA Merrill Lynch Global Research (2014)

Global Trends for the Electric & Electronics Strategic Segment

Description	battery, exterior and interior lighting, door locks, security systems, dashboard accessories, wire harnesses and the remaining electrical architecture of the vehicle
Estimated $ CPV	$1,825
Estimated market size	$153.2bn
Current Outsourcing	Medium
Concentration	Low
Growth Potential	High
Major Trends	moderate growth in electronics & electrical system specifically, but aggregate electronic content will grow more rapidly within other systems
Top five suppliers	Continental, Delphi, Denso, Sumitomo Electric, Yazaki

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Apparel & Textiles

Apparel Industry: Global Trends

- Post-MFA: intensification of competitive pressures and consolidation of production
- Pressure towards faster response times and more efficient logistics
- Emergence of large consumer base in middle-income countries
- More stringent social and environmental standards (inputs, processes and products)
- Omni–channel retail and the growing importance of buyers' experience
- Return of customized design and production

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Apparel Industry: Strategic Segmentation

	FORECASTED DEMAND	REACTIVE DEMAND
SIMPLE PRODUCTS	*Strategic Segment 1 (Target - staple items)*	*Strategic Segment 2 (Zara – 'fast fashion')*
COMPLEX PRODUCTS	*Strategic Segment 3 (Hugo Boss - luxury/lifestyle technical textiles)*	

Each strategic segment has its own distinct ***ideal*** value chain….

These ***ideal*** value chains are ***not country specific.***

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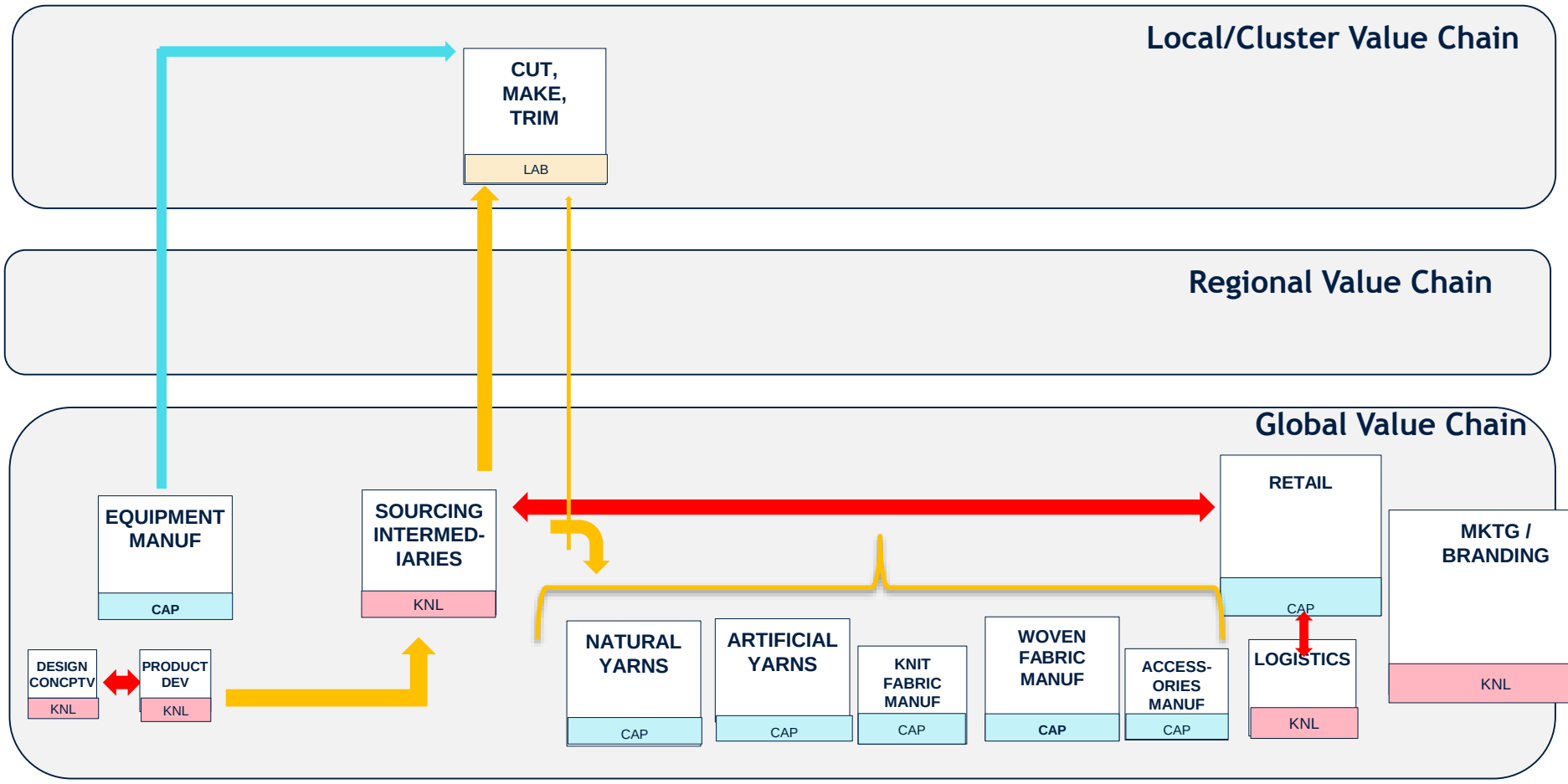
Apparel Ideal Value Chain Segment 1: Simple Product / Forecasted Response



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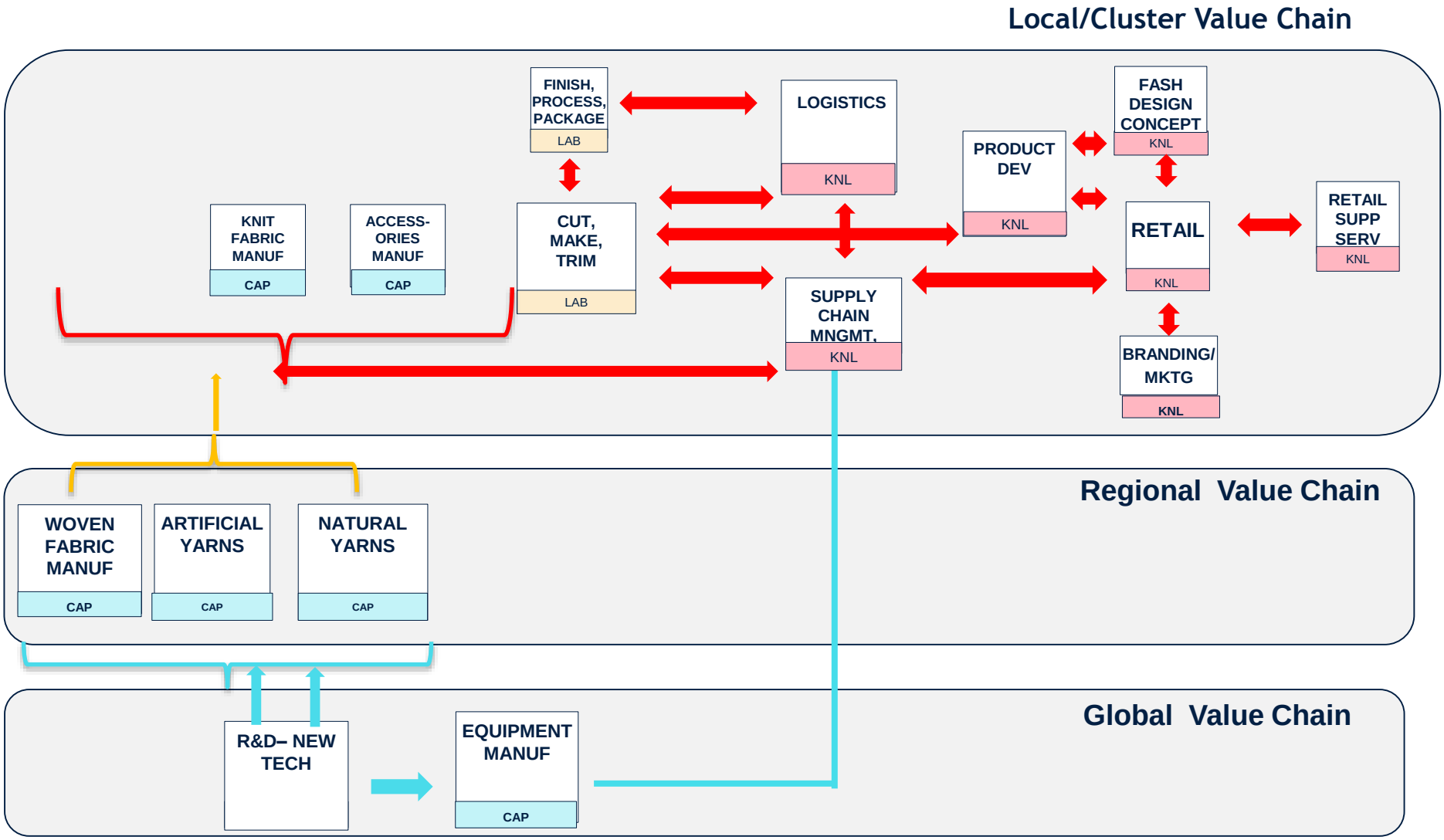
Apparel Ideal Value Chain Segment 2: Simple Product / Reactive Response



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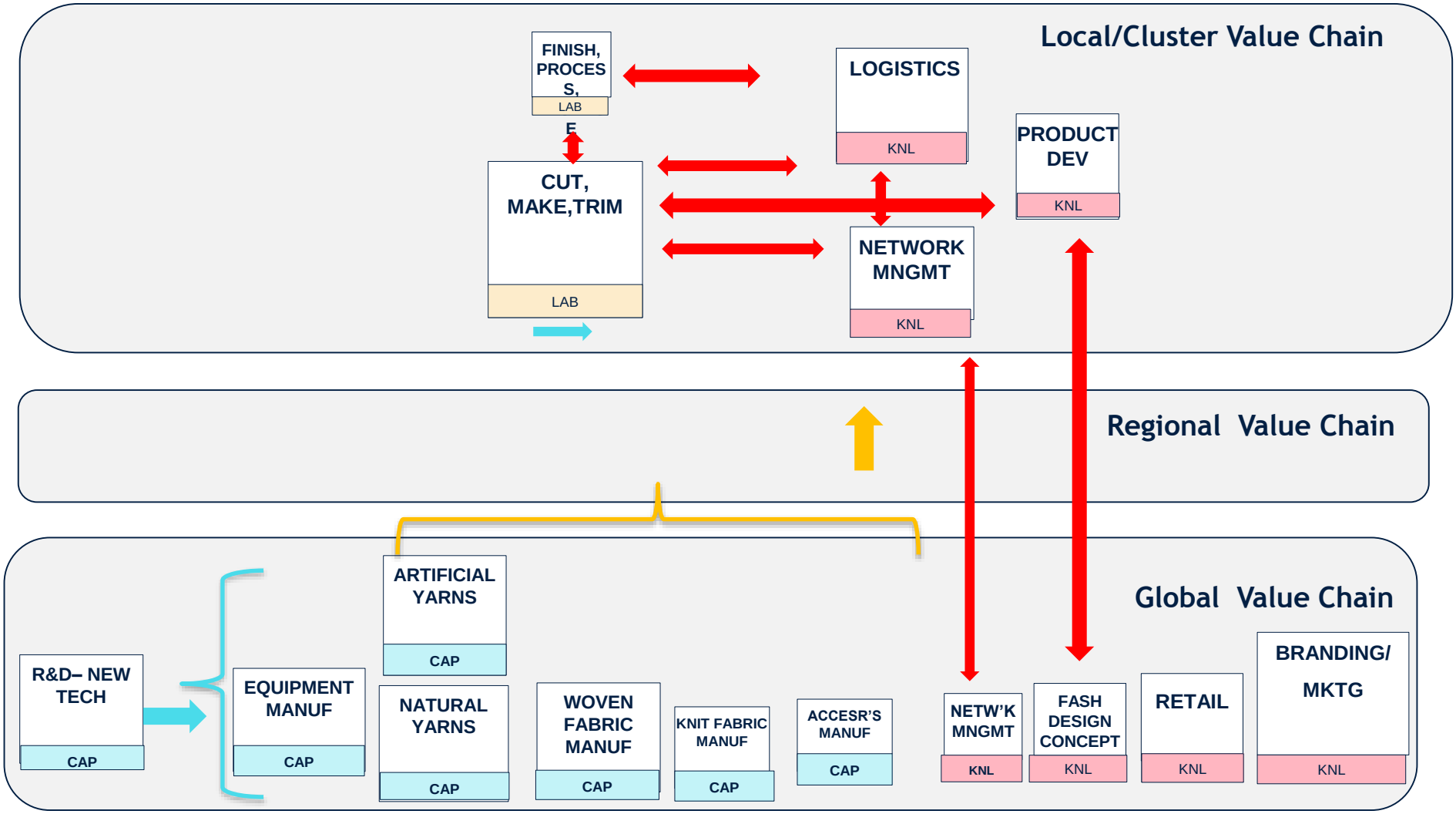
Apparel Ideal Value Chain – Segment 3: Complex Product / Forecasted Response



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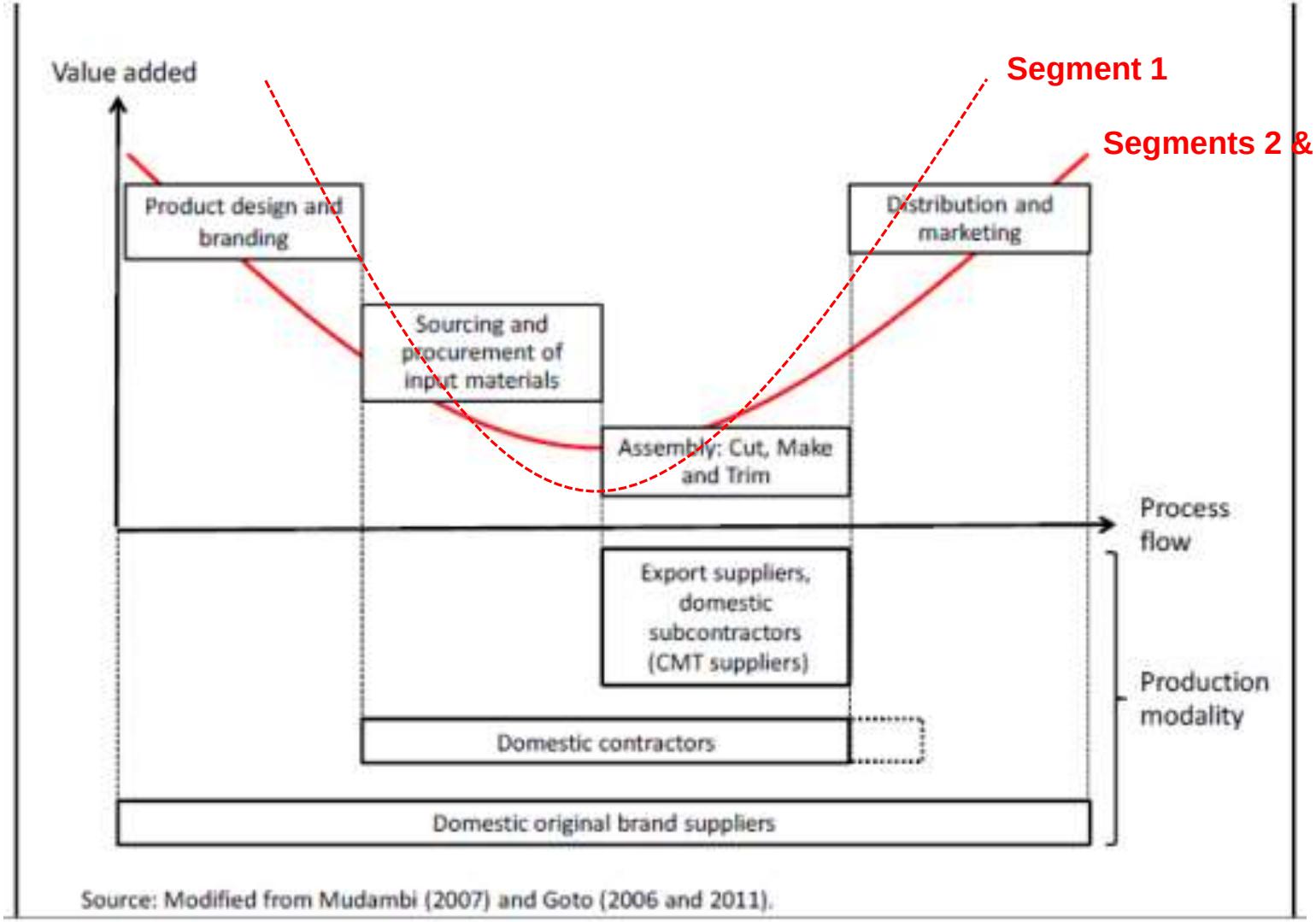
The most important questions: How is value added distributed within each segment?



Source: Modified from Mudambi (2007) and Goto (2006 and 2011).

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In which strategic segment is Chiapas currently positioned?

…para la Discusión en las Mesas de Trabajo Sectoriales…

Segment	Requirements	Examples
1: Forecasted demand, simple products	Low labor costs, environmental/social compliance	 
2: Reactive demand, simple products	Efficient logistics/position on trade routes/proximity to large markets, environmental/social compliance	
3: Forecasted demand, complex products	Local market/middle-class with homogenous/predictable tastes, environmental/social compliance	 

CHIAPASNOS UNE

Textile Industry in Chiapas:

- 4,500 employees
- mostly artisanal firms and distributors
- production is mostly scattered and only San Cristobal shows initial agglomeration
- only 7 firms have more than 30 employees, out of which 4 are distributors
- mostly focused on textile production and small retail rather than on apparel production

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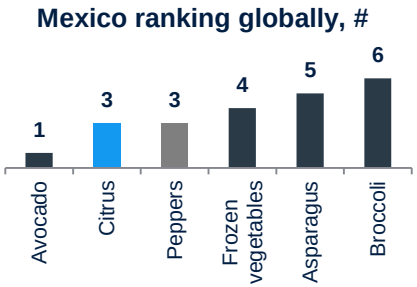
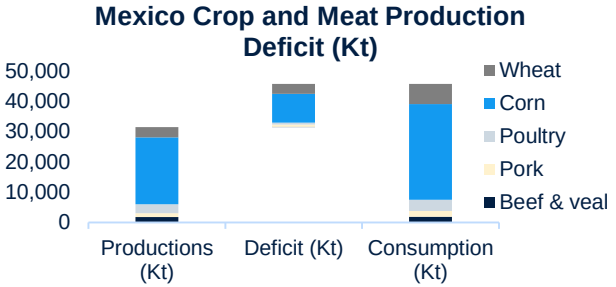
Agribusiness – Overview.

Agribusiness Industry Overview in Mexico

CONTEXT OVERVIEW

- **Mexico has a large agribusiness sector:**
  - 14% of the country's employment and 8.4% of GDP
  - Leading producer of fruits & vegetables
- **However, it remains a significant food importer:**
  - Mexico currently imports 43% of its food basket
  - It remains dependent on the US which accounts for approximately 75% of its agricultural traded value

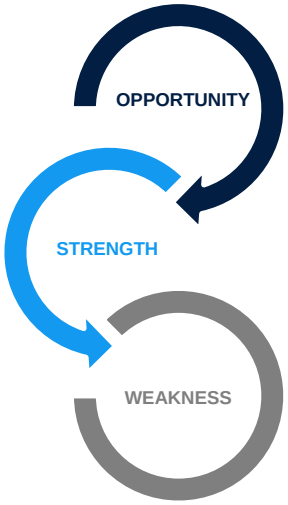




- On the financing side, the agribusiness sector is underpinned by the following dynamics:
  - **Small producers:** served by local development banks (Financiera Nacional) and private financial institutions which are funded by subsidized funds from public institutions (FIRA)
  - **Large companies**: (i.e. Bimbo, Sigma, Xignux, Lala) are typically well served by local financial institutions and capital markets

→ Investors target the "In-Between" Midsize Companies US$50 – 250 mn revenues

MARKET OPPORTUNITIES



ANIMAL PROTEIN: PORK & POULTRY

Strong growth with a rising middle class
30% of pork and poultry demand covered by imports / Poultry represents 63% of animal protein consumption

FRUITS AND VEGETABLES

Competitive production due to weather conditions and low-cost labor
Largest exporter to US (US$ 8 bn)
High growth in organic market

PALM OIL / FORESTRY

Adequate weather conditions in the Southern region of the country
South-South opportunities as Central American players enter Mexico

Ownership fragmentation impacting yields
Safety issues: concentrated in some rural areas with a strong agricultural tradition (e.g.: Michoacán and Veracruz)
Infrastructure deficit in rural areas hurting competitiveness via increased costs and making expansion difficult

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Dairy

Tendencias globales en la industria láctea

- Distintos grupos de usuarios han emergido con diferentes actitudes hacia los alimentos y la nutrición
- Muchos consumidores en países de alto ingreso típicamente tienen menos tiempo para preparar la comida y por eso ellos valoran comida pre-preparada y variedades convenientes
- Los productos con una fecha de vencimiento limitada están cada vez más asociados con ‘saludable’ y pueden exigir un valor adicional
- La popularidad creciente de los sustitutos de la leche (además de las connotaciones negativas asociadas con la industria láctea)
- Un aumento en la consolidación de productores y procesadoras
- El aumento en la globalización de la industria láctea y el aumento de la susceptibilidad a las crises económicas internacionales
- Los temas relacionados con el cambio climático podrían impactar la sostenibilidad de las granjas de productos lácteos en algunas regiones

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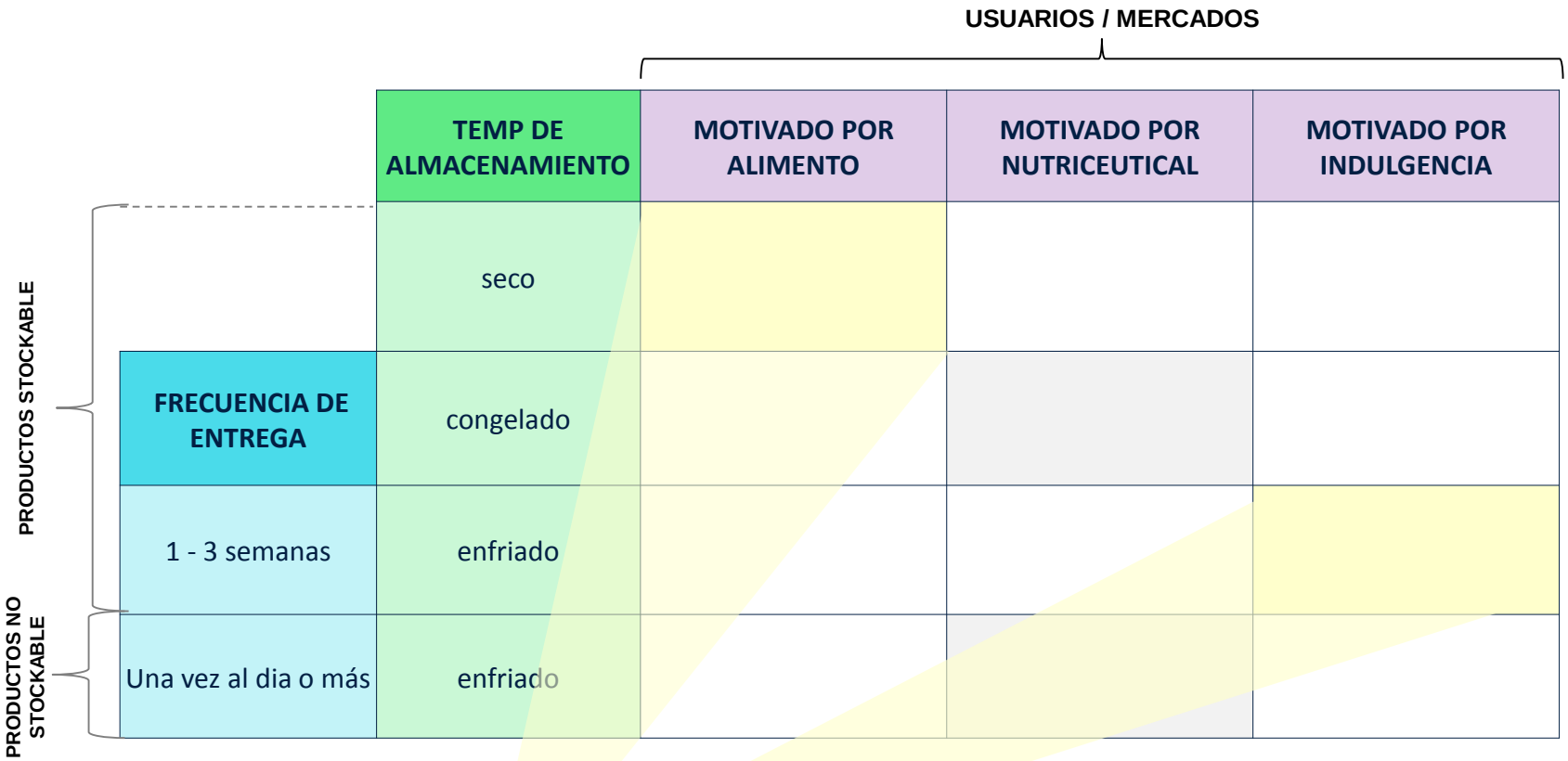
Dairy: Strategic Segmentation



Cada segmento estratégico tiene su propia cadena de valor ***ideal***

Estas cadenas de valor ***ideal no son especificas en cualquier pais.***

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Dairy Strategic Segmentation reveals 4 broad VC Groups

- **Estos grupos pueden ser definidos, en términos generales, por su carácter perecedero, si puede ser vendido a un precio elevado y si hay un mercado global para el producto.**

A. Comercial (Stockable) Global

Esto se incluye los productos lácteos que pueden ser comerciados internacionalmente (usualmente debido a su "stockabilidad" o el hecho de que pueden ser hechos con leche en polvo). Los mejores ejemplos son los productos que informan el índice del Global Dairy Trade. Por ejemplo: Leche entera en polvo, queso cheddar, lactosa, suero de mantequilla en polvo, caseína de cuajo

B. Perecedero No-Premium

Se incluye los productos producidos y vendidos localmente por los cuales los consumidores no estarían dispuestos a pagar un precio elevado. Puede ser que en realidad, los productos no son 'vendidos' sino 'cedidos'.

En los PAI se incluiría la leche fresca genérica producida en masa. En los PBI contaría con la leche que es consumida directamente por la familia del granjero

C. Perecedero Premium Global

Se incluye las marcas superiores y los productos que pueden ser comerciados internacionalmente a pesar de su carácter perecedero, debido al reconocimiento de la marca. Tales productos incluyen queso Roquefort (Francia), queso Parmigiano (Italia), Haagen Dazs (US, France ++)

D. Perecedero Premium Local

Se incluyen los productos con carácter perecedero por los cuales los consumidores locales estarían dispuestos a pagar un precio elevado. Quizá por su sabor local (por ejemplo: Kefir), preferencia hasta productos producidos localmente (por ejemplo: la tendencia estadounidense hacia productos artesanales), el deseo por 'frescura' (por ejemplo: rechazo a conservantes / aditivos en California) o cualquier atributo que aumenta 'la 'disposición a pagar' entre los consumidores locales.

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LEYENDA: La estructura de la cadena de valor ideal (actividades)

la intensidad (o coeficiente) de uso de diferentes recursos y las economías de escala de cada actividad en la cadena de valor

	Alta	*Media*	*Baja*
Las actividades de utilización intensiva del conocimiento (costo del entrenamiento)	ACTIVITY KNL	ACTIVITY KNL	ACTIVITY KNL
Las actividades de utilización intensiva del capital (nivel requerido de la inversión)	ACTIVITY KNL	ACTIVITY KNL	ACTIVITY KNL
Las actividades de utilización intensiva del labor (costo del labor como % del total)	ACTIVITY LAB	ACTIVITY LAB	ACTIVITY LAB
Las actividades utilización intensiva de los recursos naturales (dependencia del factores y de condiciones ambientales)	ACTIVITY N-RES	ACTIVITY N-RES	ACTIVITY N-RES
Las actividades de utilización intensiva del energía (costo de energía como % del total)	ACTIVITY ERGY	ACTIVITY ERGY	ACTIVITY ERGY
Con refrigeración	ACTIVITY		

la intensidad del flujo de información entre cada actividad

Conexión "perecedera" 4hrs - 4días)
Intercambio de Información de Baja | Intercambio de Información de Alta

Conexión "justo a tiempo" (24- 48 horas)
Intercambio de Información de Baja | Intercambio de Información de Alta

Conexión "a pedido de" (semanas)
Intercambio de Información de Baja | Intercambio de Información de Alta

Conexión "en almacenamiento" (meses)
Intercambio de Información de Baja | Intercambio de Información de Alta

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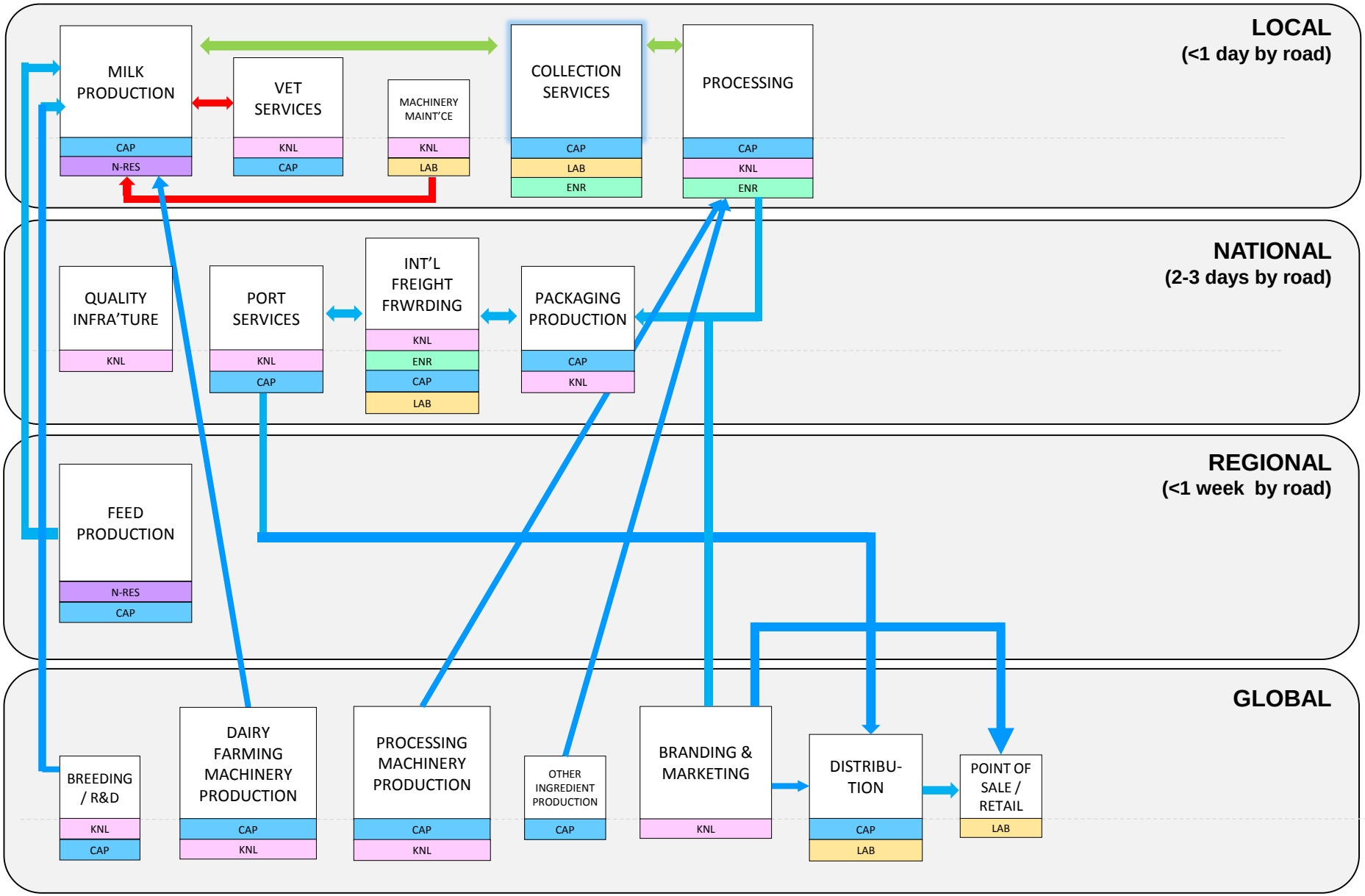
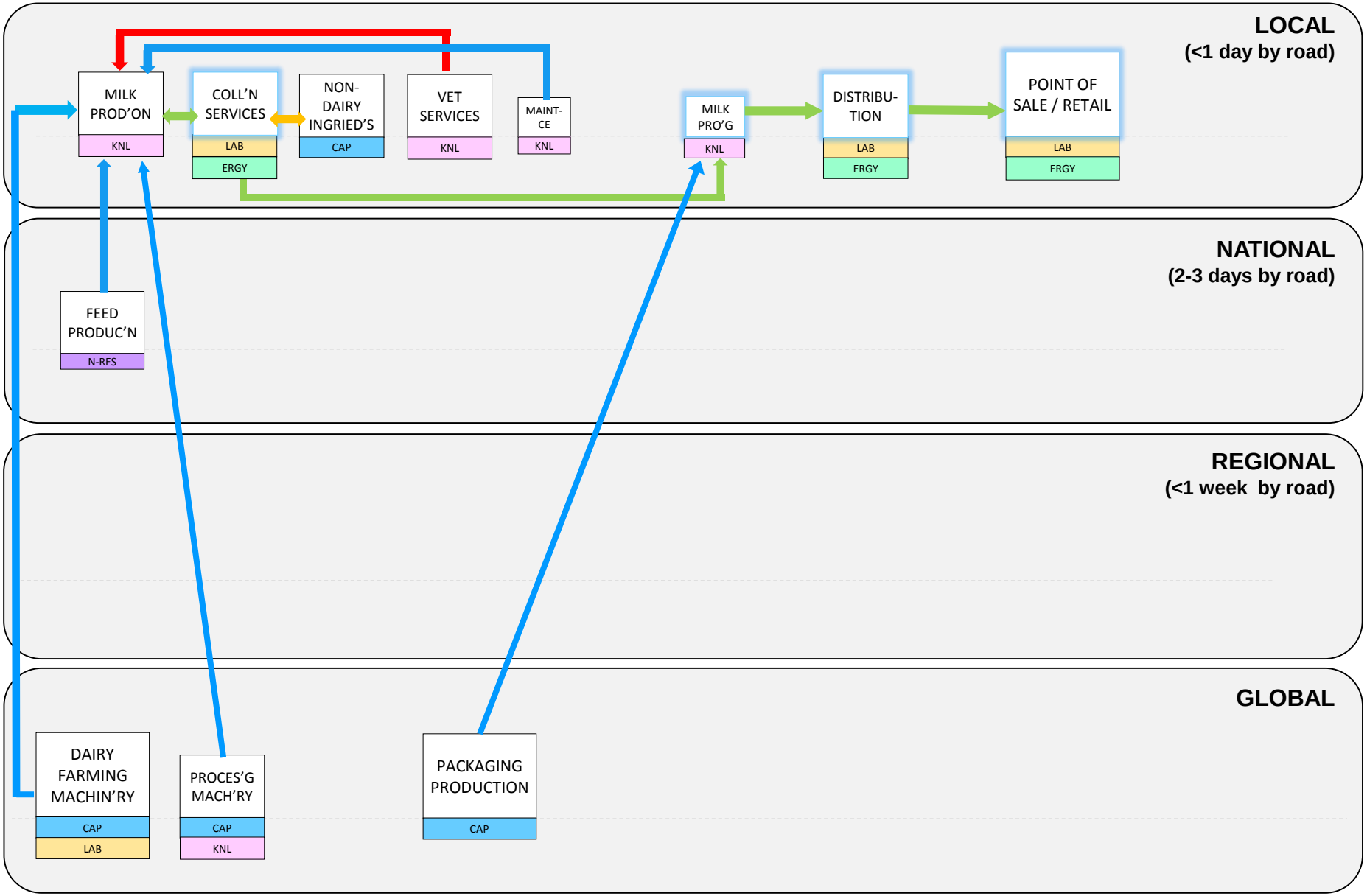
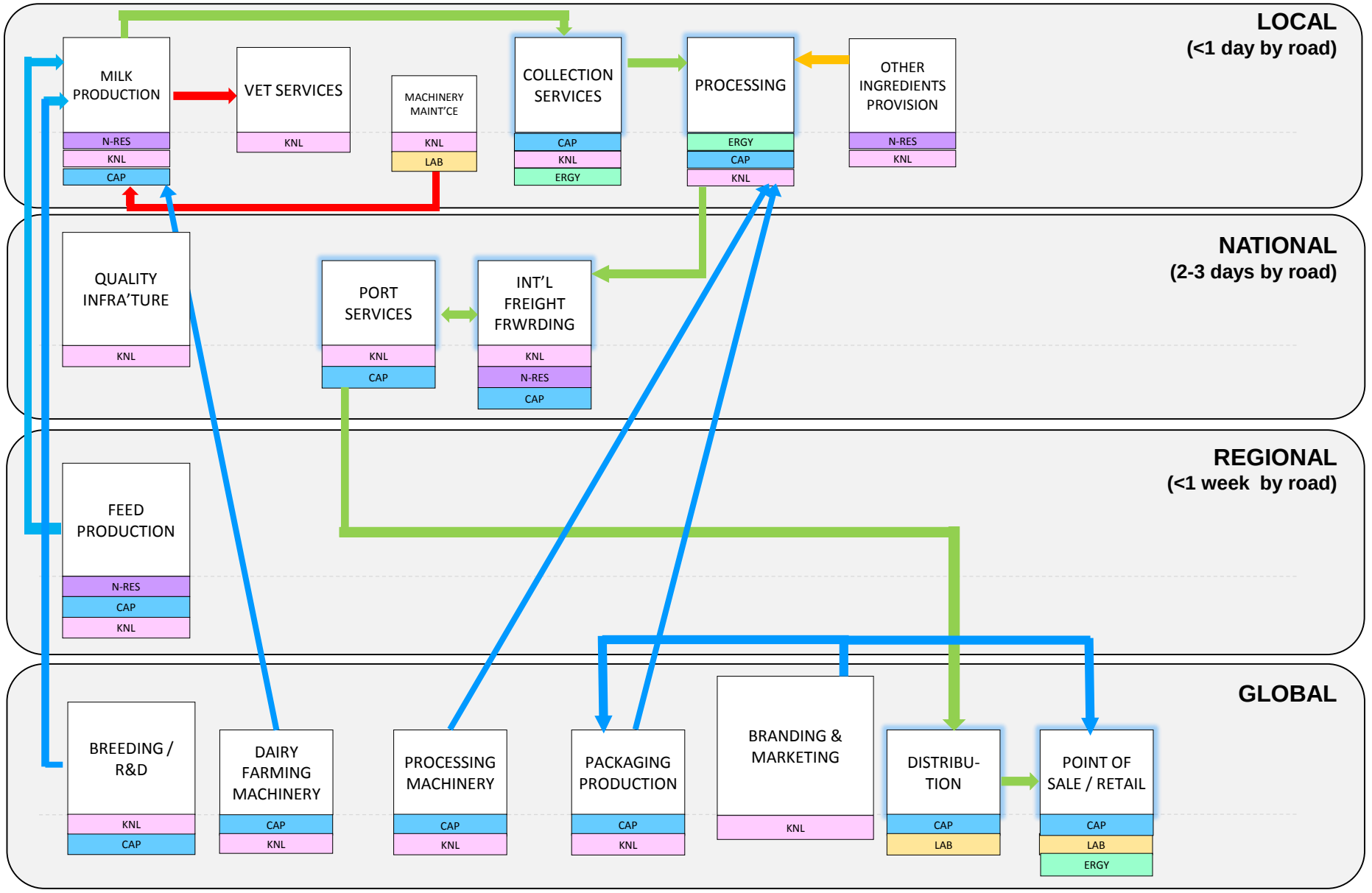
Dairy Ideal Value Chain: Strategic Segment A - Tradable, Stockable



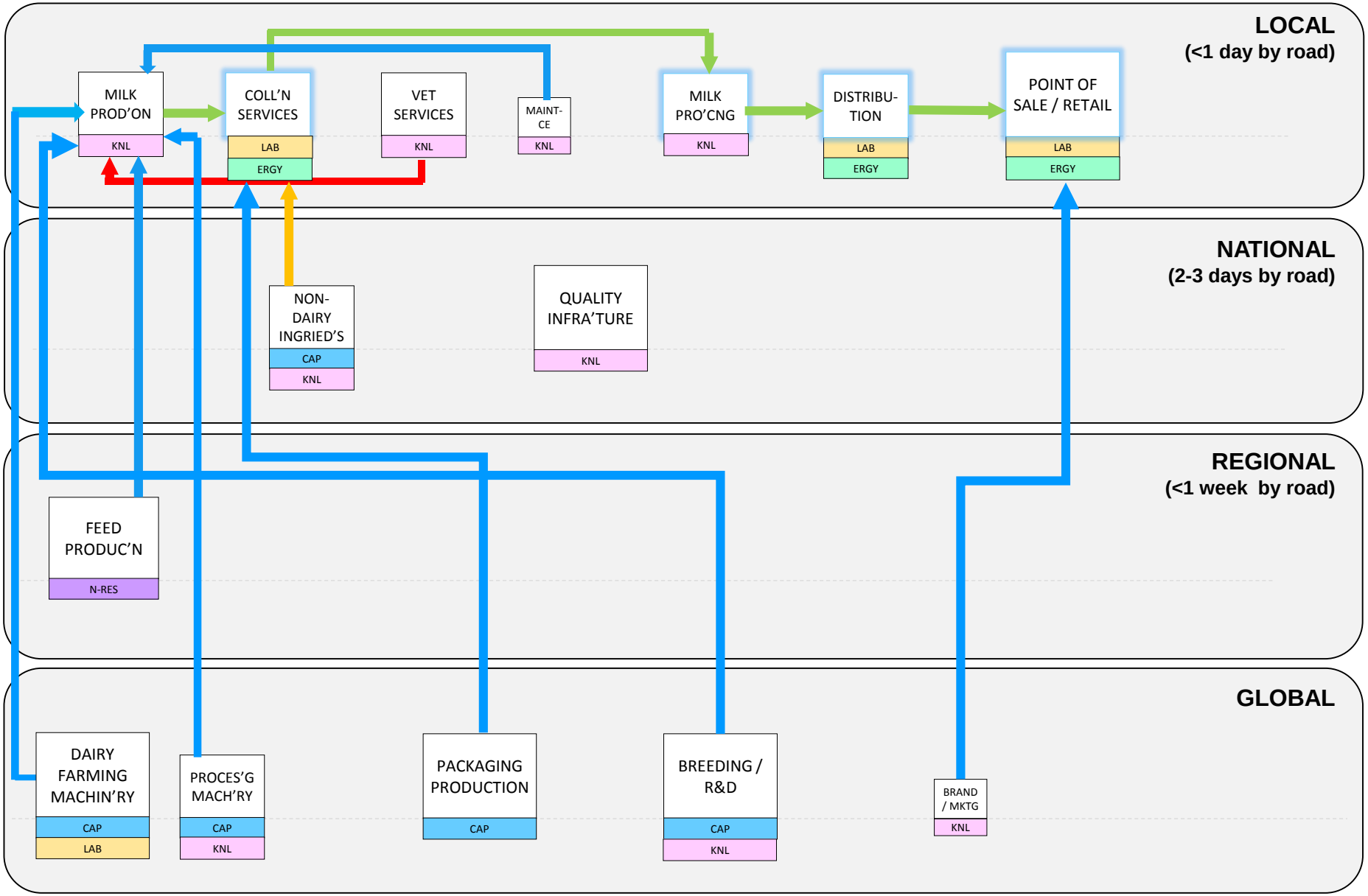
Dairy Ideal Value Chain: Strategic Segment B – Perishable, Non Premium



Dairy Ideal Value Chain: Strategic Segment C – Perishable, Premium Global



Dairy Ideal Value Chain: Strategic Segment D – Perishable, Premium, Local



The most important question: in which Dairy strategic segment Chiapas can compete?

…para la Discusión en las Mesas de Trabajo Sectoriales…

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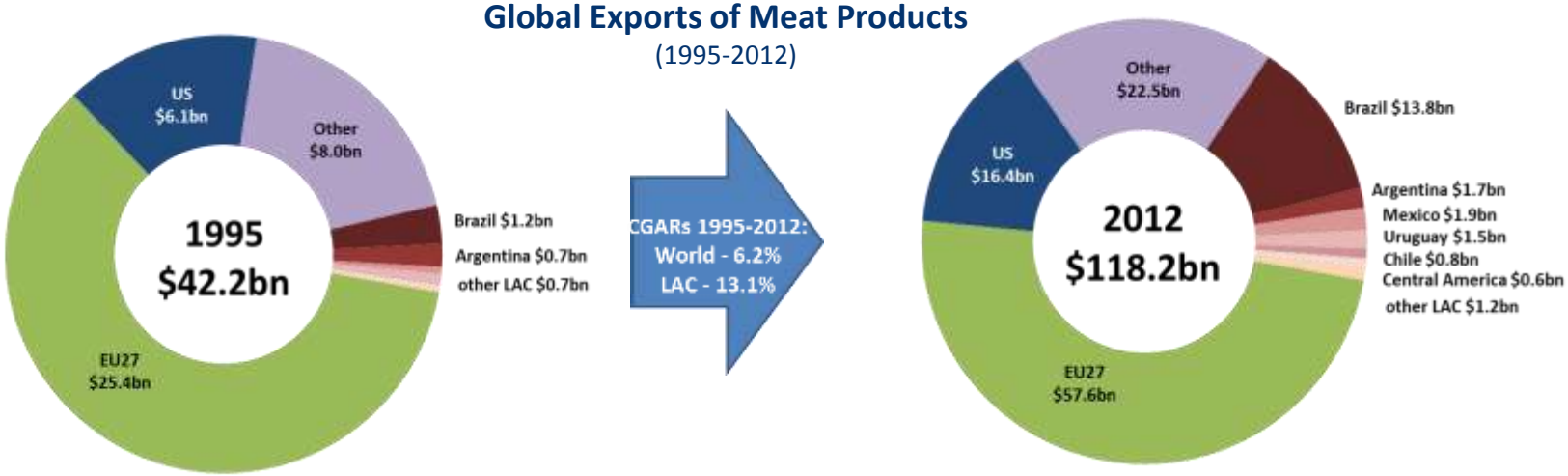
Meat

Meat Global Industry …LAC is Starting to Feed the World… How about Chiapas?

- A $120bn export market in beef, pork and poultry
- LAC's market share increased from 6.2% in 1995 to 18.2% in 2012
- Brazil alone holds 11.6% of global exports, but Mexico, Uruguay, Argentina and others are also growing

Global Exports of Meat Products

(1995-2012)



LAC's market is growing and diversifying:

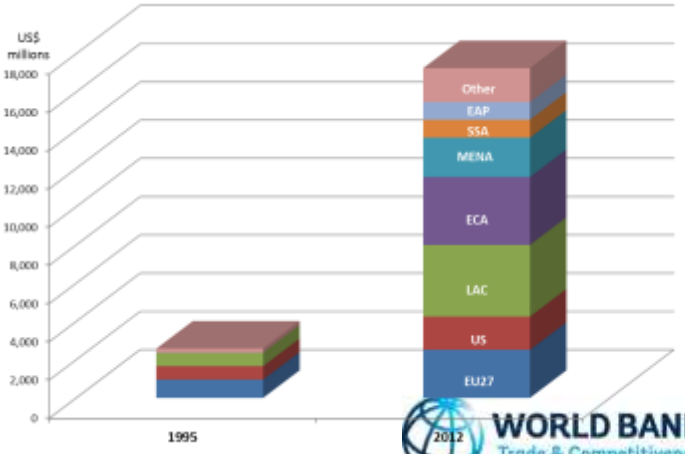
- The EU and US markets keep growing, but export shares fell from 53% in 1995 to only 19% in 2012
- Developing countries now account for half of LAC's meat exports
- Intra-regional trade now equal in size to the US and EU markets combined

=> Growing middle classes and changing consumption patterns and diets in developing countries present a new market opportunity

(global meat consumption expected to double by 2050)

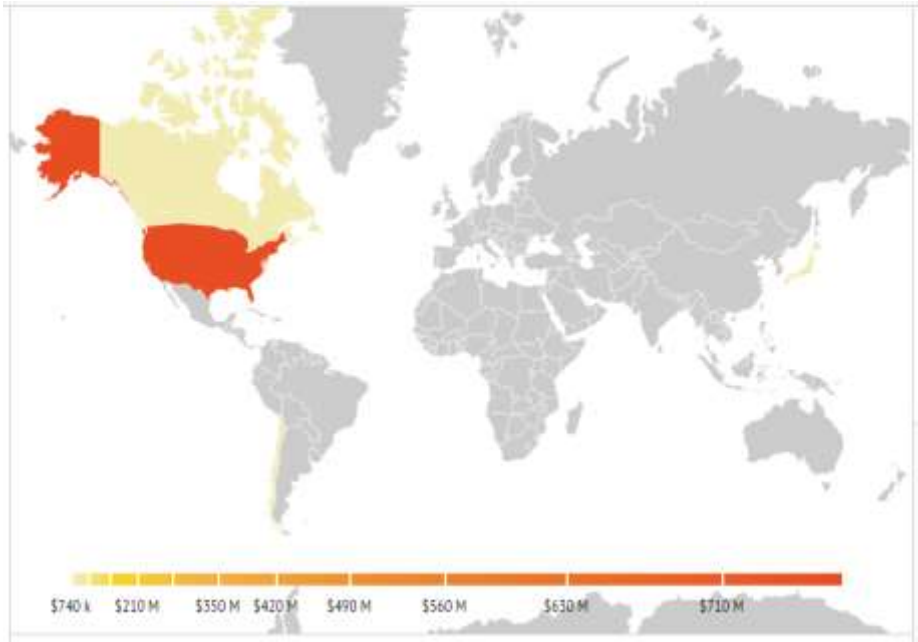
Importers of LAC Meat Products

(in US$ millions, 1995 and 2012)

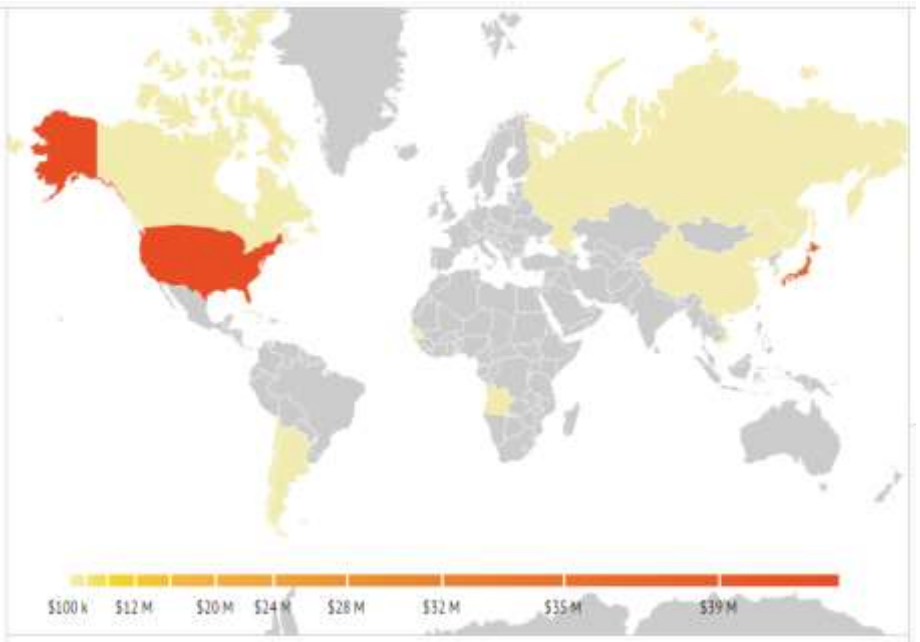


Mexico's Main Export Markets for Meat (Bovine) in 2014…

Bovine Meat – USD 710 Mln



Bovine Meat (frozen) – USD 39 Mln



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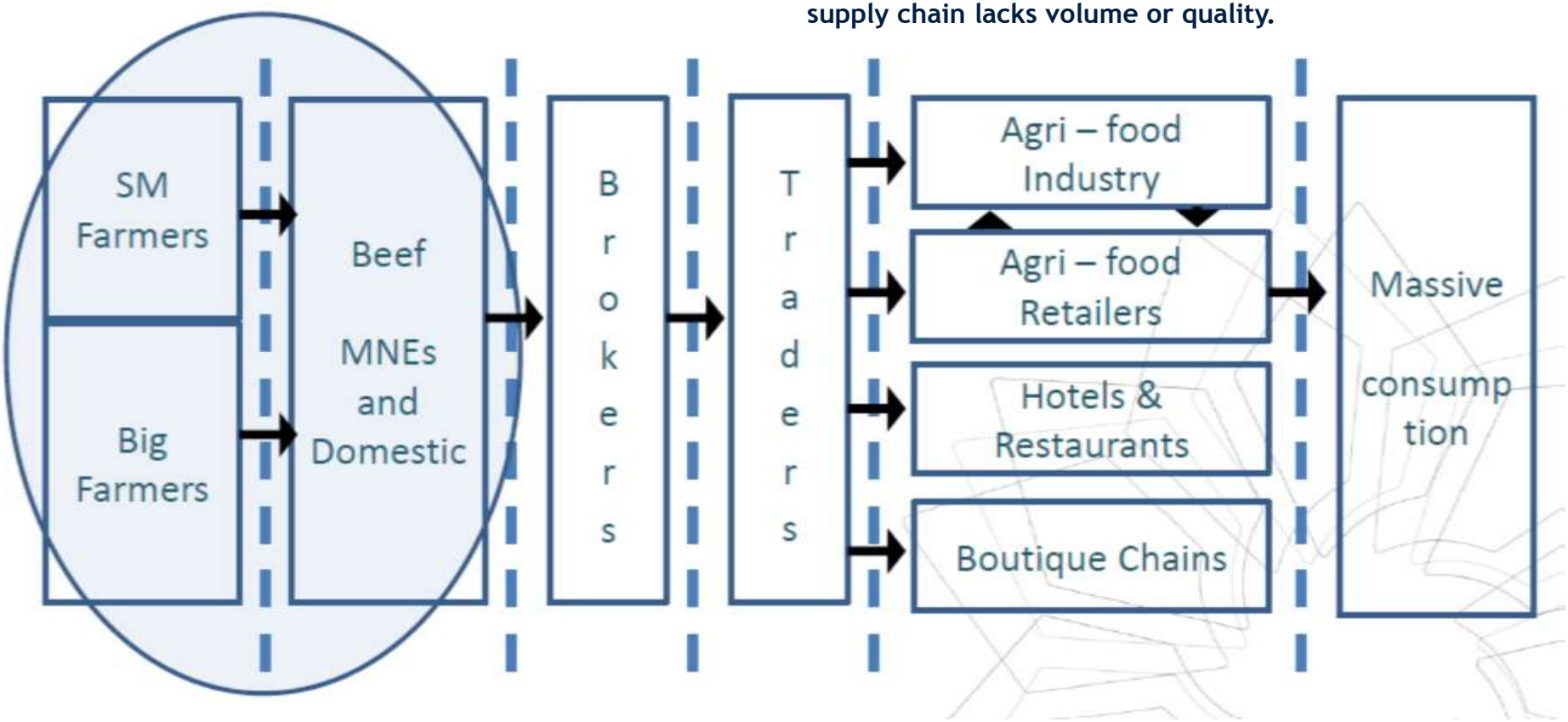
Beef Ideal Global Value Chain

Critical Success Factors:

- First tier sponsors with market leadership.
- Technical strength to drive efficiencies in livestock production.
- Appropriate scale and scope.
- Competitive cost of livestock (feed cost).
- Strict bio-security on farms and in supply chain.
- Market share should be large enough to affect pricing.
- Slaughter house should only invest in farming if the supply chain lacks volume or quality.



Local/Cluster Value Chain

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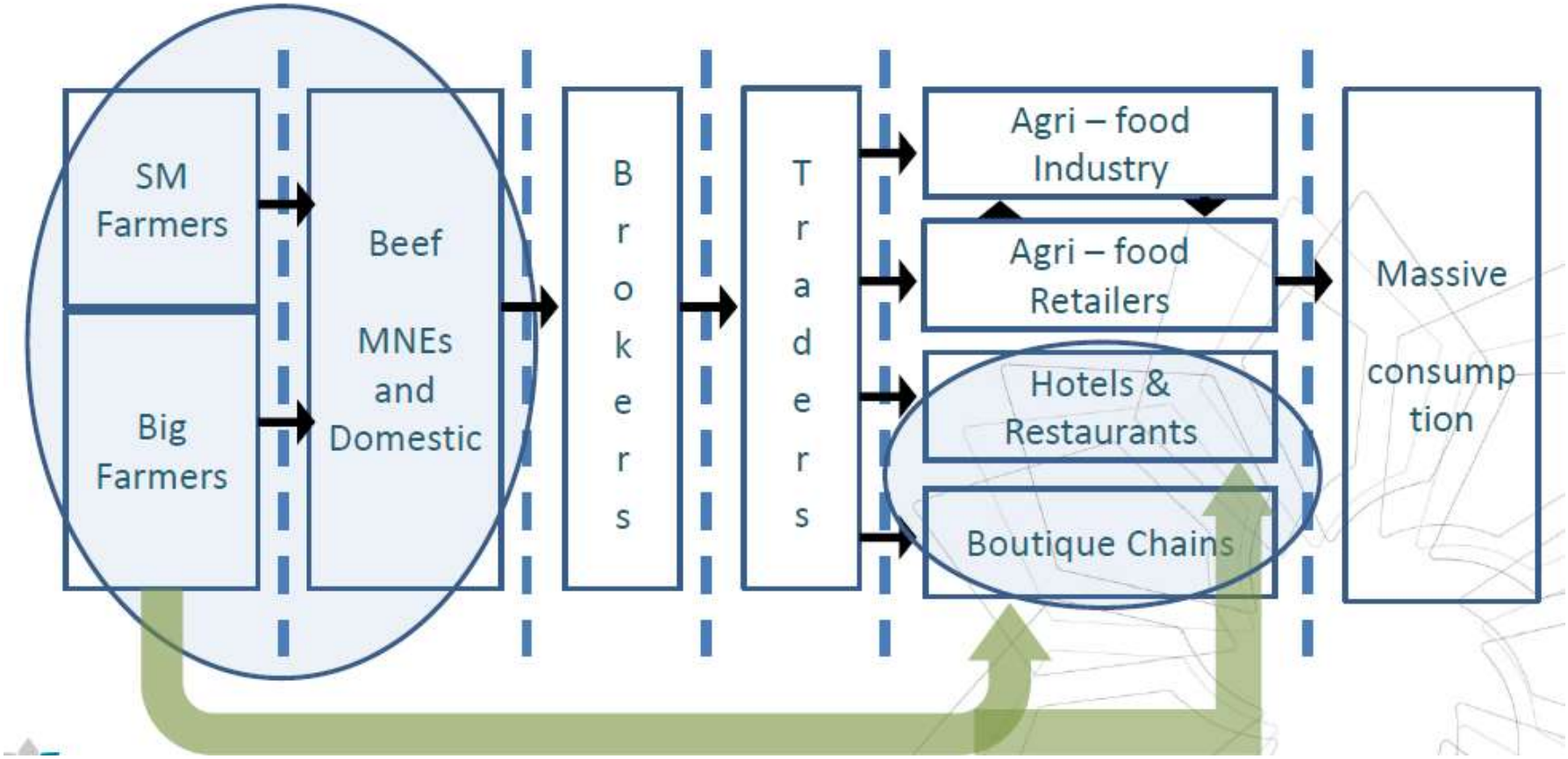
Upgrading Options in the Beef Ideal Value Chain: Strategic Segment Gourmet Beef

Ideal upgrading scenario for small volumes, high-quality, full-traceability beef producer…



Local/Cluster Value Chain

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The most important question: in which Beef strategic segment Chiapas can compete?

…para la Discusión en las Mesas de Trabajo Sectoriales…

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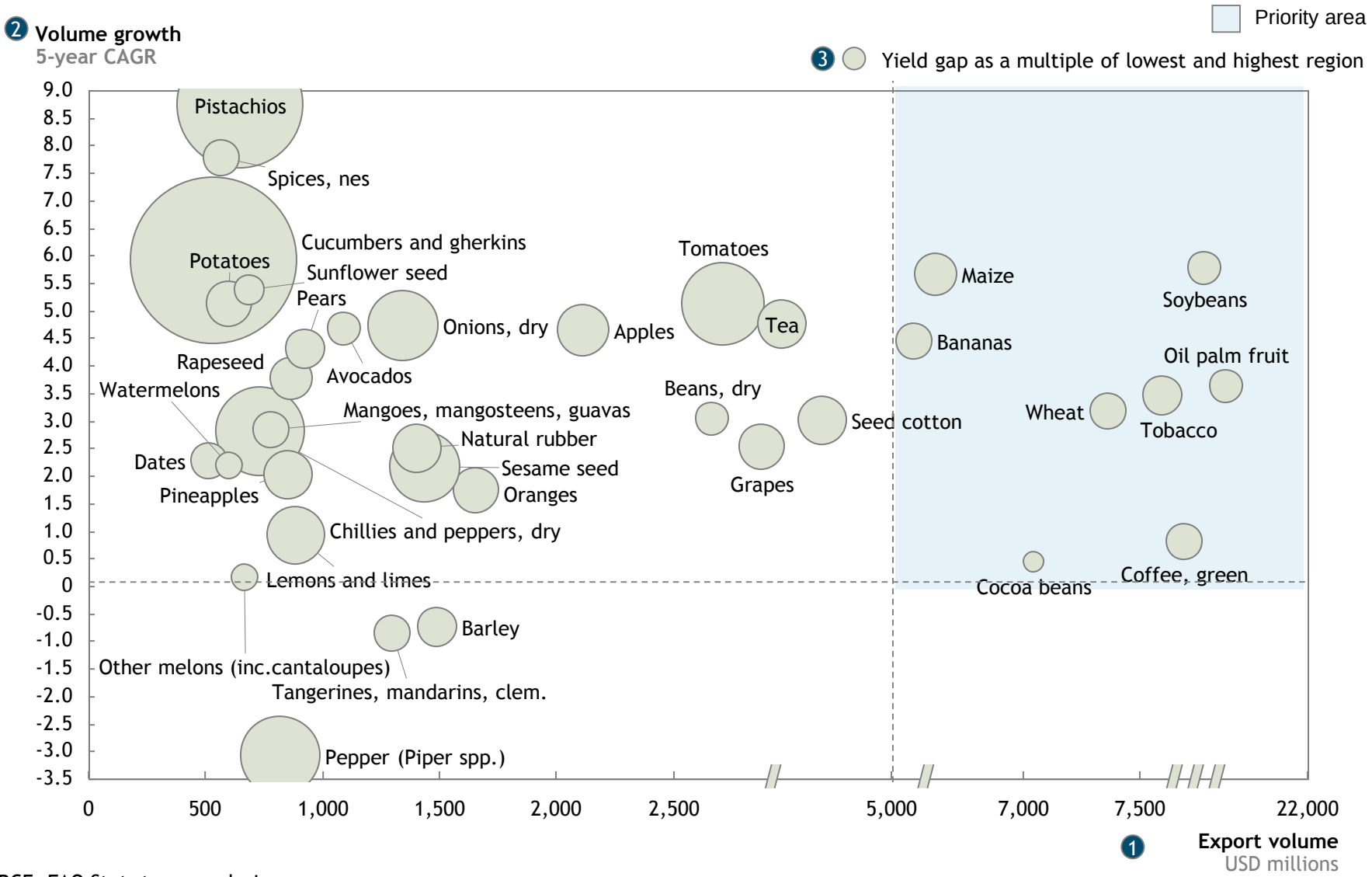
Agricultural Exports – Overview.

Could high export volume crops that are growing be a priority for Chiapas?



SOURCE: FAO Stat, team analysis

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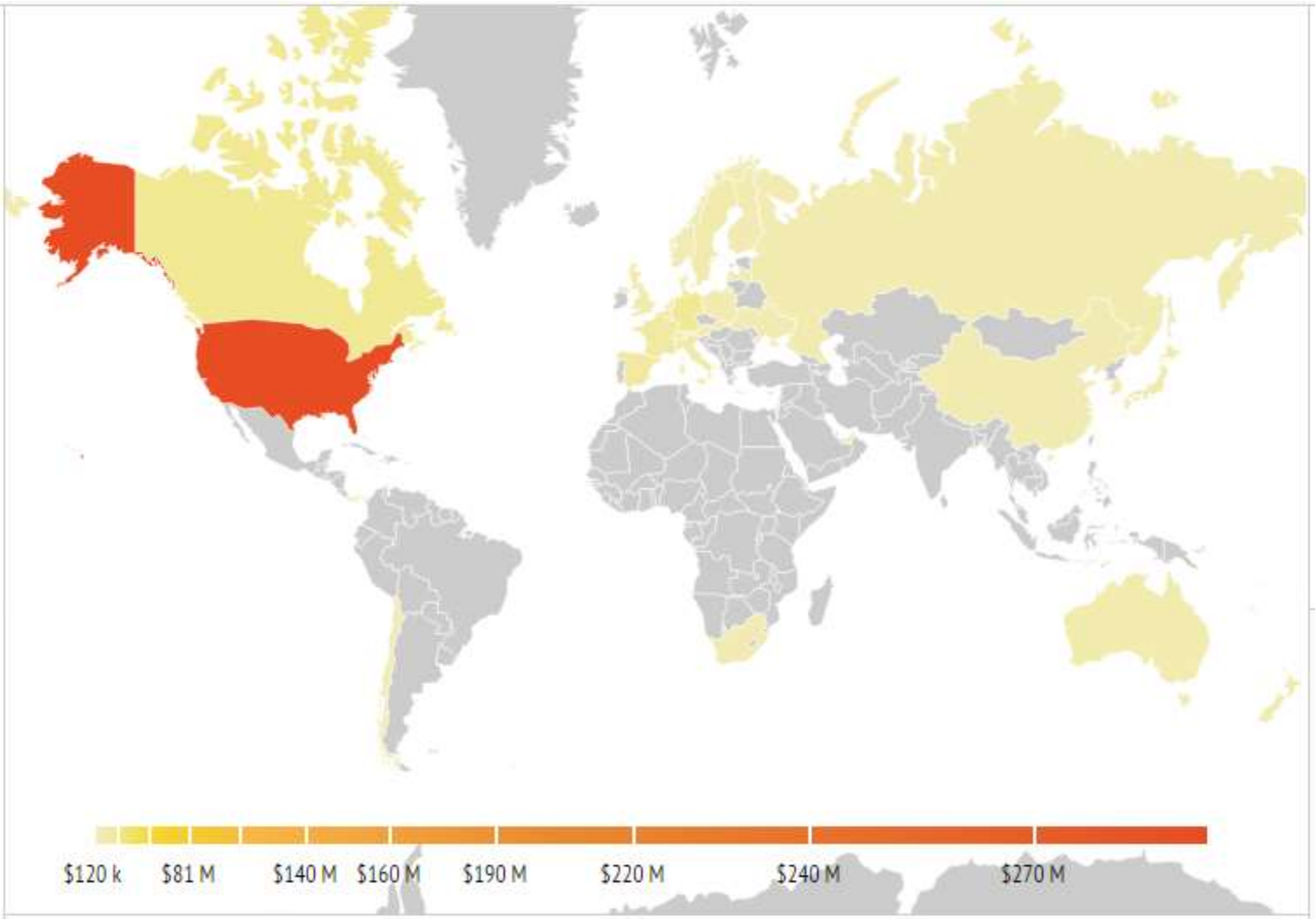
Coffee

Mexico's Main Export Markets for Coffee (not roasted) in 2014…



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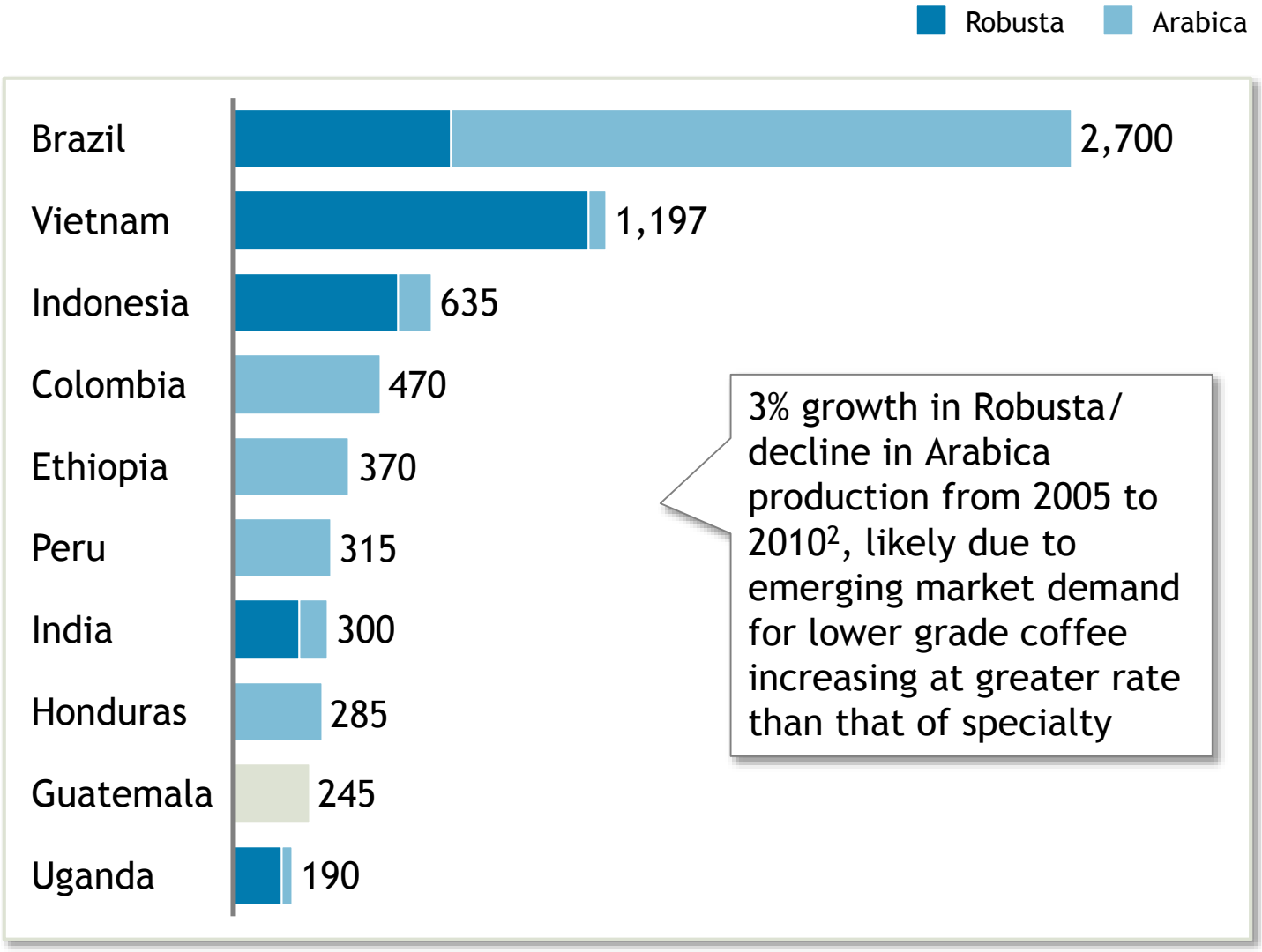
Who are the Top 10 producers of coffee in emerging markets?



SOURCE: Food and Agriculture Administration of the United Nations, International Trade Center

1 Coffee variety breakdown based on extrapolation of data from International Trade Center and assumed same weights of beans across both varieties and countries

2 From International Trade Center

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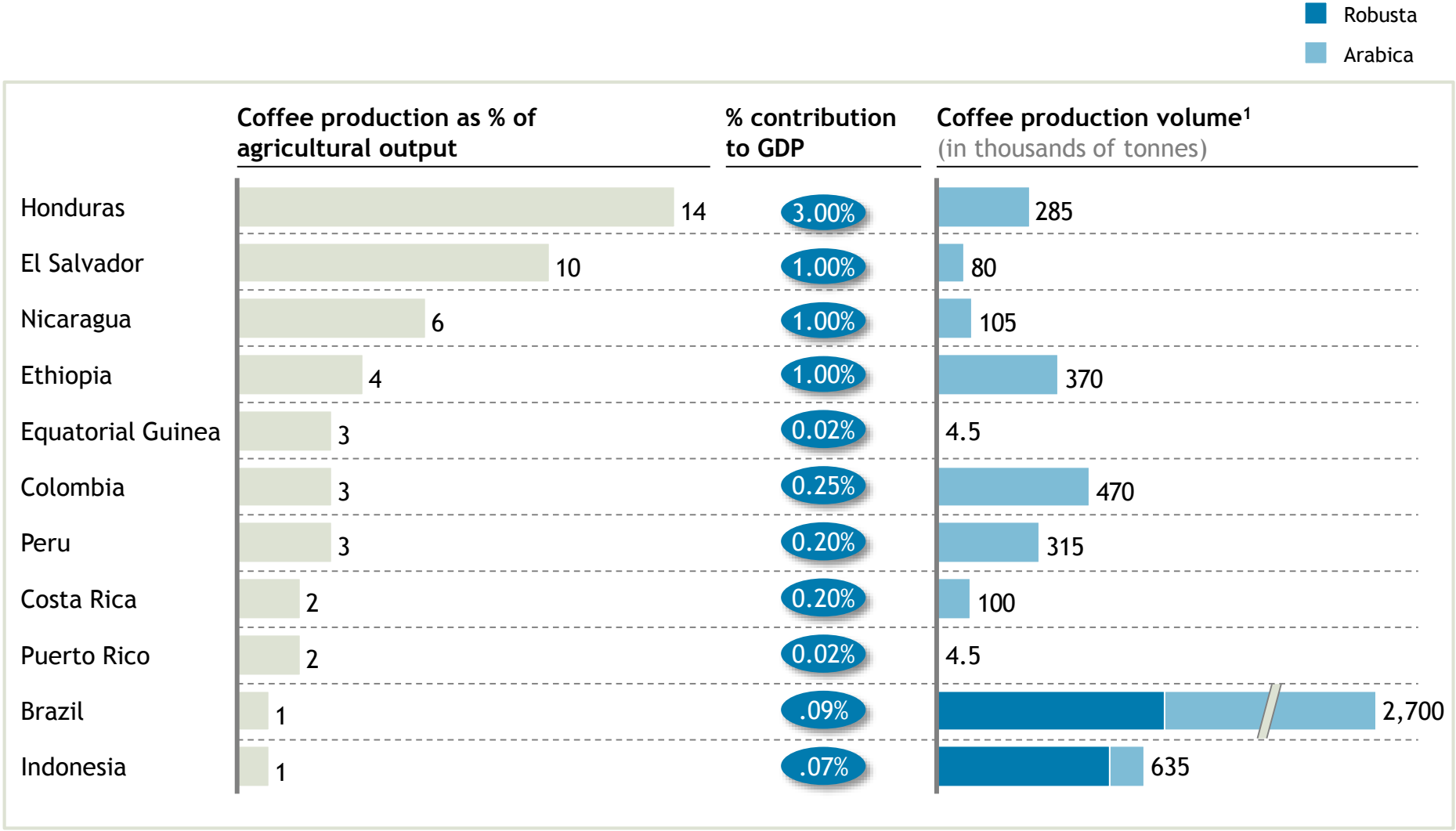
Contribution of coffee production to producer country agriculture and GDP totals



1 Coffee variety breakdown based on extrapolation of data from International Trade Center and assumed same weights of beans across both varieties and countries

SOURCE: United Nations, Food and Agriculture Administration of the United Nations, International Trade Center

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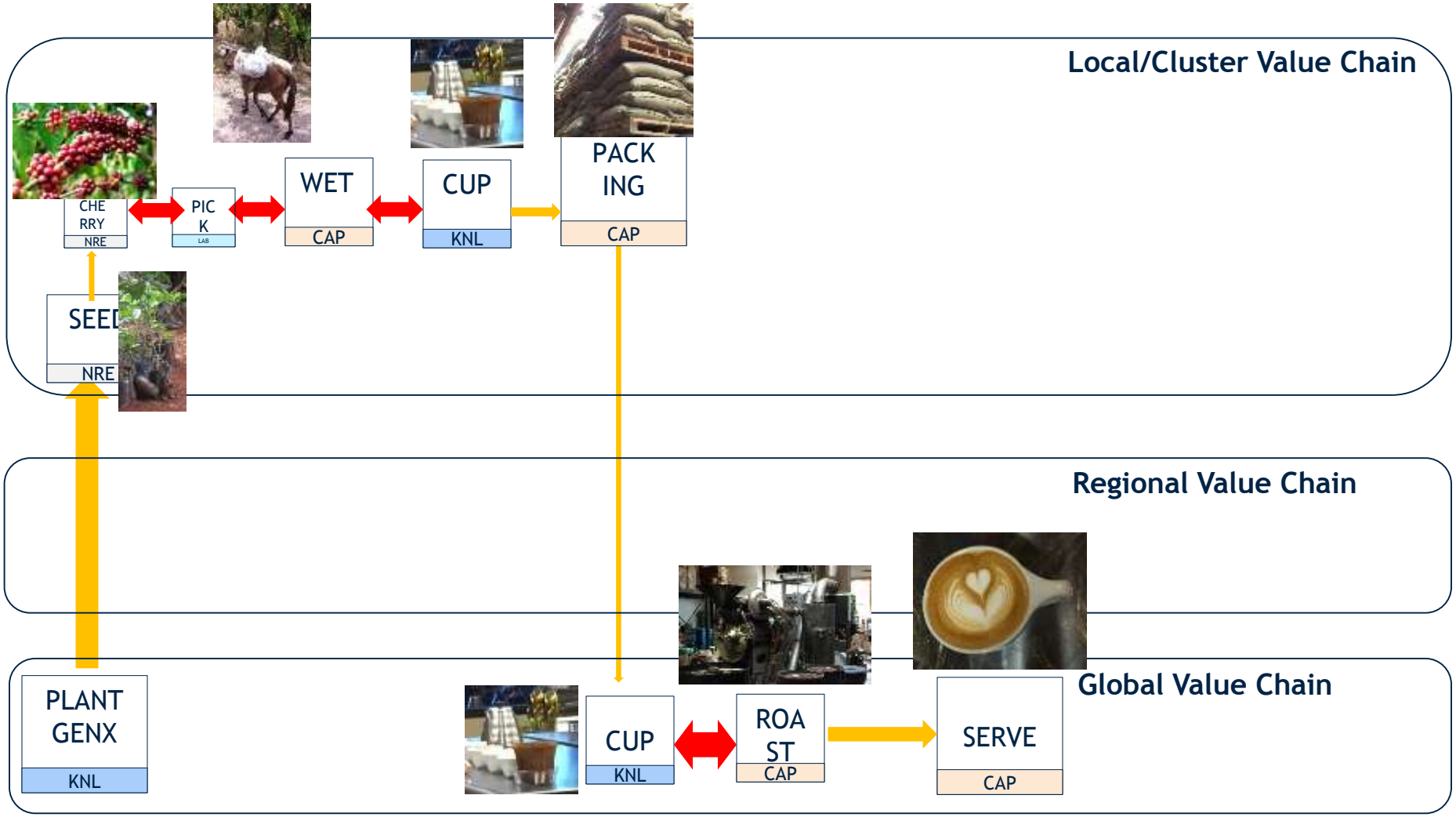
Coffee Ideal Value Chain: Strategic Segment 1 – Specialty Coffee



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Coffee in Chiapas: what do we have?

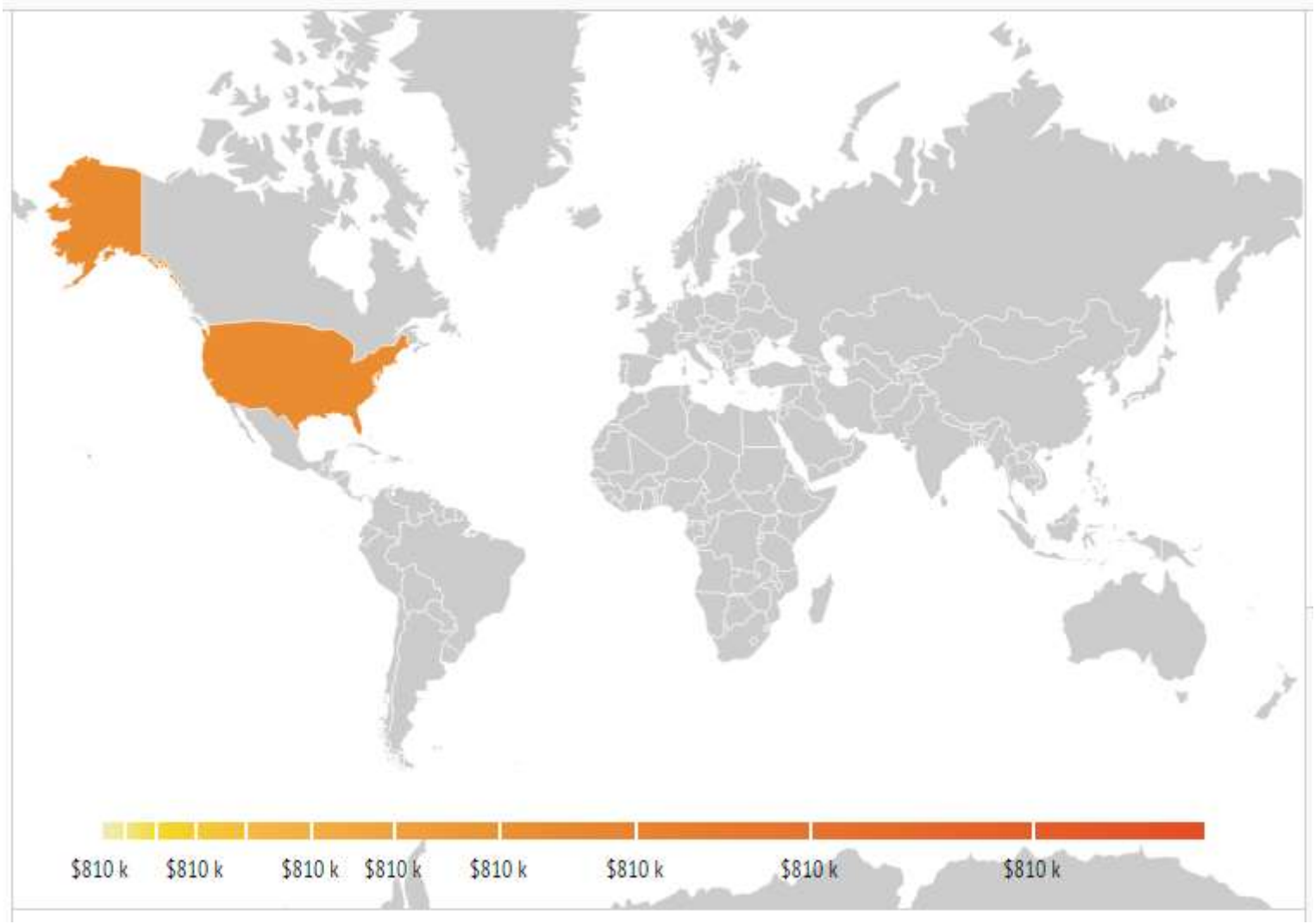
- Spread out accross 13 regions, particularly Ocosingo, San Cristobal, Motozintla, Tapachula
- Top producer in Mexico (40%) but losing share to Veracruz (now 24% and top-3 quality producers in 2014 ("Taza de Excelencia México 2014")
- Mostly focused on the "Commercial Coffee" Strategic Segment
- Over 150,000 producers
- Low level of collaboration in the industry.
- Problems around quality standardization given the wide array of farming heights (which impacts quality). But do we want to standardize?
- Some claim the coffee sector is over-diagnosed
- La roya emergency. It impacts 40% of coffee growers and production in 2014-2015 is expected to fall 34%

How can Chiapas move to the Strategic Segment of "Specialty Coffee"?

…para la Discusión en las Mesas de Trabajo Sectoriales…

Palm Oil

Mexico's Main Export Markets for Palm Oil (crude) in 2014…



Palm Oil Stylized Value Chain & Performance Metrics

Key Performance Metrics:

- Production cost per tonne CPO - <$300 – 350. Africa will be higher, at $500.
- Development cost per hectare to maturity $3000+
- Land cost per hectare $500+ (more in Latin America).
- Planting material should preferably be from a first class breeding program
- Palm density 128-148 per Hectare
- First crop 26-28 months after planting (36 is common)
- Peak crop 27+T FFB per Ha
- Average age at felling for replanting 24 years (extended to 30 years+ if prices are high). Replanting rate ca. 4% annually
- Harvest output 1.5T+ FFB harvested daily per harvester per day
- Ripeness standard 5-10 loose fruit pre harvest
- Mill size 30 - 60Tonnes per hour throughput (there are a few POMs in the 90-120 TPH range)

Critical Success Factors:

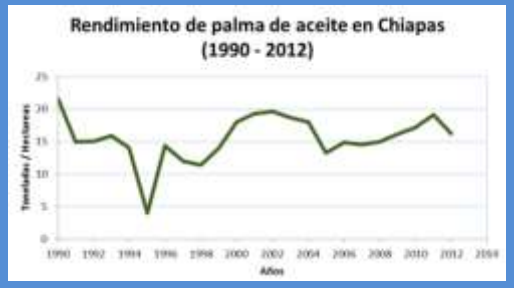
- Efficient Logistics
- Mill needs to be close to plantation (40-60 km radius)
- Traceability and Environmental Sustainability systems in place
- Refineries & Blenders close to end-markets

Typical Investment Requirements:

Plantation & Mill Capital	USD	Maintenance costs	USD
Development Costs ex. land (per Ha)	3,000-5,000	Fertilizer	
POM – Palm Oil Mill (30tph)	6 million +	Labor (staff per Ha)	6-10 mln

Palm Oil in Chiapas: what do we have?

- Largest producer with 44% of production followed by Veracruz (13%), Tabasco and Campeche.
- 5,403 producers & 41 organizaciones de productores
- Some specialized suppliers (eg CONAGRO)
- 550 MdP industry (2013). Precio Medio Rural ($/Ton) 1,433
- Very low productivity (15 tn/ha in Soconusco, 6 tn/ha in Selva)
- Average extraction rate 20%
- Domestic demand: Mexico imports 84% (379,383 tn in 2012, mainly from Costa Rica, Honduras, Guatemala)
- Port plan for a non-oil liquids terminal
- New plant planned for Agroparque Tapachula



Regiones	Sup. Sembrada (Ha)	Sup. Cosechada (Ha)	Producción (Ton)	Rendimiento (Ton/Ha)	Valor Producción ($)
Soconusco	28,062	18,183	291,756	15	438,945,000
Región Selva	19,239	10,470	87,423	6	105,388,000
Marqués de Comillas	1384	1085	3363.5	3	3,699,000
	48,685	**29,738**	**382,542**	**8**	**548,032,000**

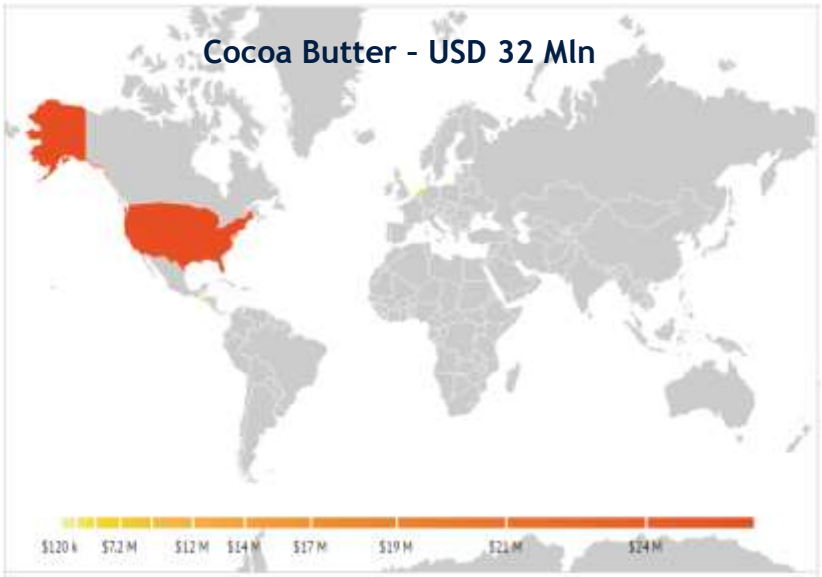
Servicio de Información Agroalimentaria y Pesquera (SIAP)-SAGARPA 2013

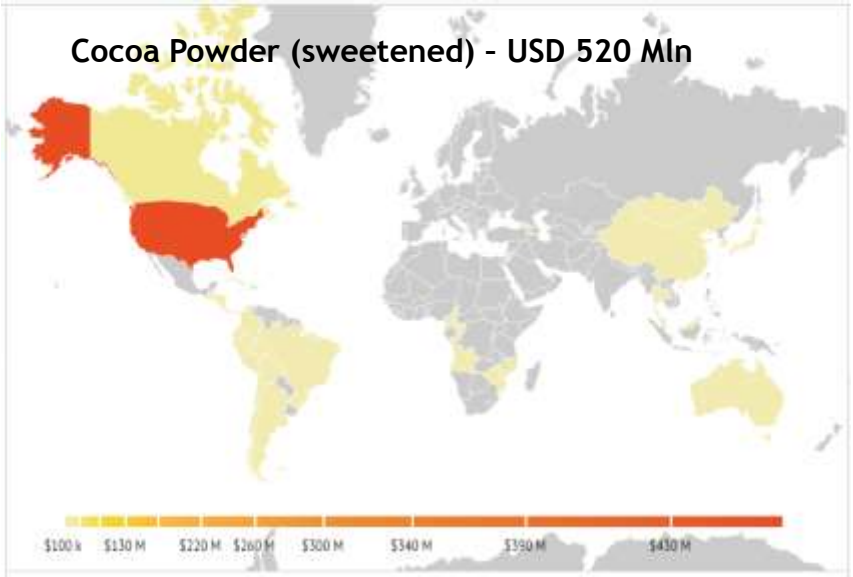
The most important question: How can Chiapas improve its strategic position in the Palm Oil Industry?

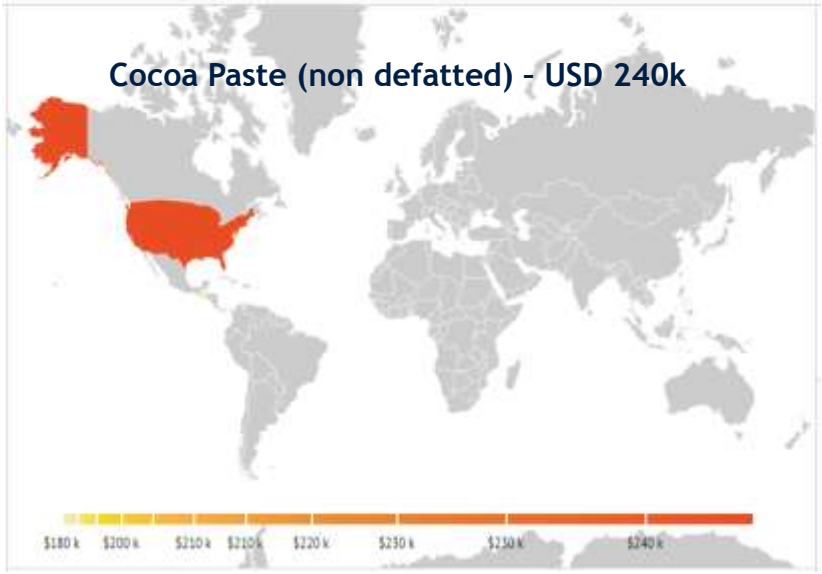
…para la Discusión en las Mesas de Trabajo Sectoriales…

Cocoa

Mexico's Main Export Markets for Cocoa in 2014…







Cocoa Stylized Value Chain: Key activities and Players

Cocoa value chain	Inputs	Production, pre-processing	Logistics, export, and trading	Downstream refining and products (CPG)
Key activities	▪ Sell seed, fertilizer, and crop protection to cocoa producers	▪ 90% smallholder ▪ Development of land bank ▪ Cultivation, upkeep, and harvest ▪ Fermenting and drying	▪ In-land procurement and transport ▪ Packing and transporting	▪ Downstream products manufacturing (e.g. roasting, grinding, pressing) ▪ Customer manage-ment including marketing, execution
Players[1] (2012 revenue in USD)	Syngenta ($14B) ADM ($89B) Yara ($14B) Jain Irrigation ($.65B)	Smallholder farmers (90%)	Cargill ($135B) ADM ($89B) Olam ($13.6B) Barry Callebaut ($4.8B)	Nestle S.A. ($100B) Mars ($30B) Kraft ($18B) Hershey ($6.6B)

1 Indonesia and Malaysia only, India and China excluded

SOURCE: McKinsey analysis, picture: agriculturedaY.org

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Cocoa GVC Challenges: input, production and consumer risks

Cocoa value chain	Inputs	Production, pre-processing	Logistics, export, and trading	Downstream refining and products (CPG)
Challenges for Processors	▪ Market access — Farmers hard to reach — Farmer inability to pay and lack access to financing — Farmers do not capture full value of crop inputs — Farmers have little incentive to invest ▪ Quality of inputs — Low quality of inputs — Trees have little resistance to disease	Smallholder producers (90% of total production) ▪ Quantity — Declining productivity and yields ▪ Quality — Premiums paid along value chain for high grade cocoa—low quality means value not captured	▪ Consumer risk — Environmental concerns (e.g. deforestation, GHG emissions, biodiversity loss) — Social (e.g. fair pricing, land rights) ▪ Long-term supply to ensure manufacturing needs and consumer demands are met ▪ Meeting demand for sustainable production	

Industry-wide challenges

- Replacing aging trees; 2-year maturation period before bearing fruit means immediate loss of revenue
- Mixing quality beans and losing value
- Financing smallholder input investments with longer growing cycle
- Severe producer fragmentation with 90% smallholder farmers

SOURCE: McKinsey analysis

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Cocoa Ideal Value Chain: Strategic Segment Specialty Cocoa

Cacao pick up

Transport from tree to Fermentation station

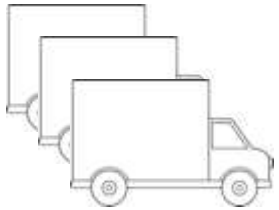
Fermenting/drying station

Transport to harbor

Ship cargo

Final delivery

LIGHT VEHICLE



Roasting on the selling point

This part of the value chain might already exist in Chiapas (it might need improvement).

This part of the value chain needs to be built in partnership with foreign firms.

Two important questions:

- Where is Chiapas currently positioned in the Cocoa Value Chain?
- How can Chiapas enter the Specialty Cocoa Strategic Segment?

…para la Discusión en las Mesas de Trabajo Sectoriales…

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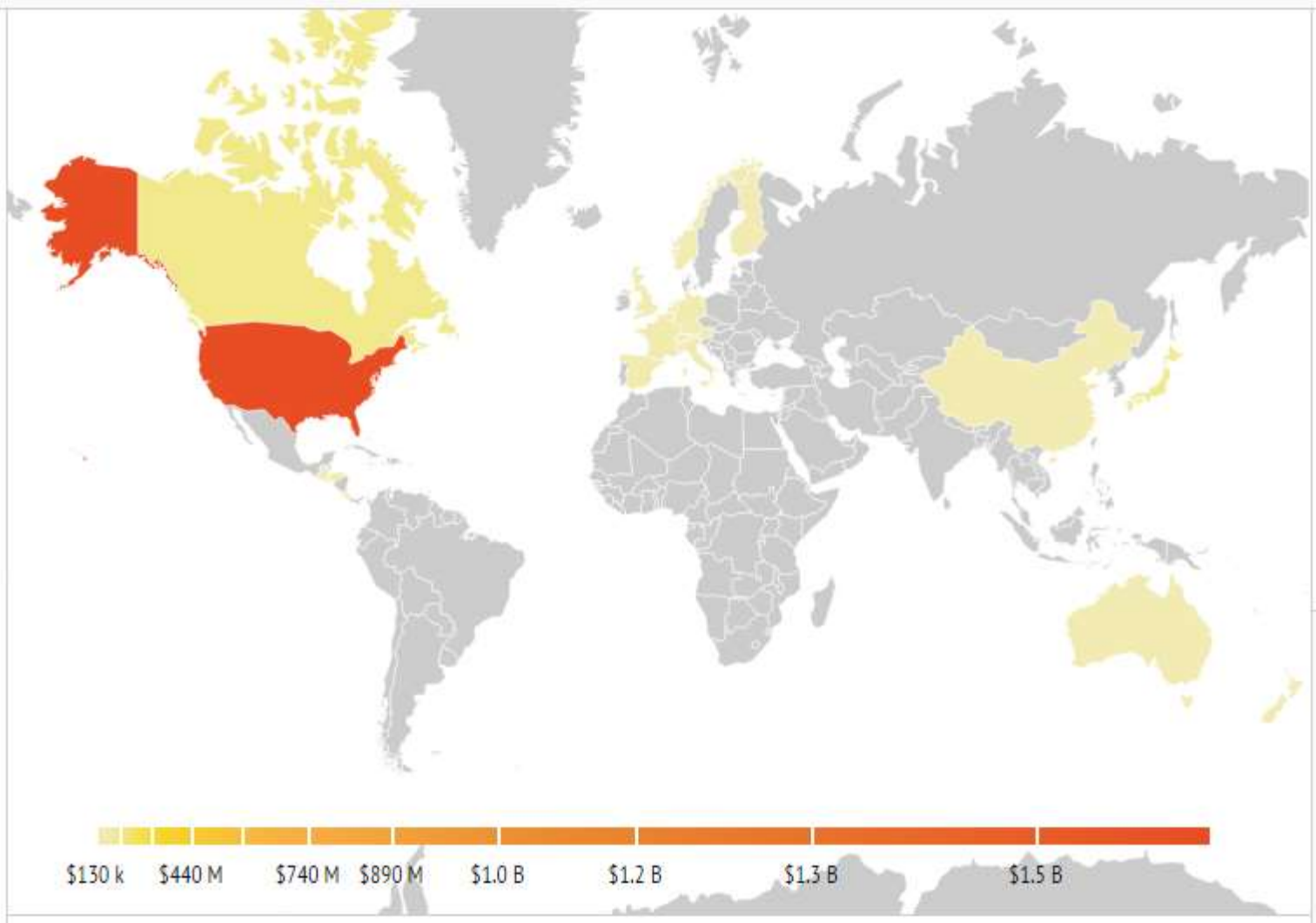
Mango

Mexico's Main Export Markets for Mango in 2014…



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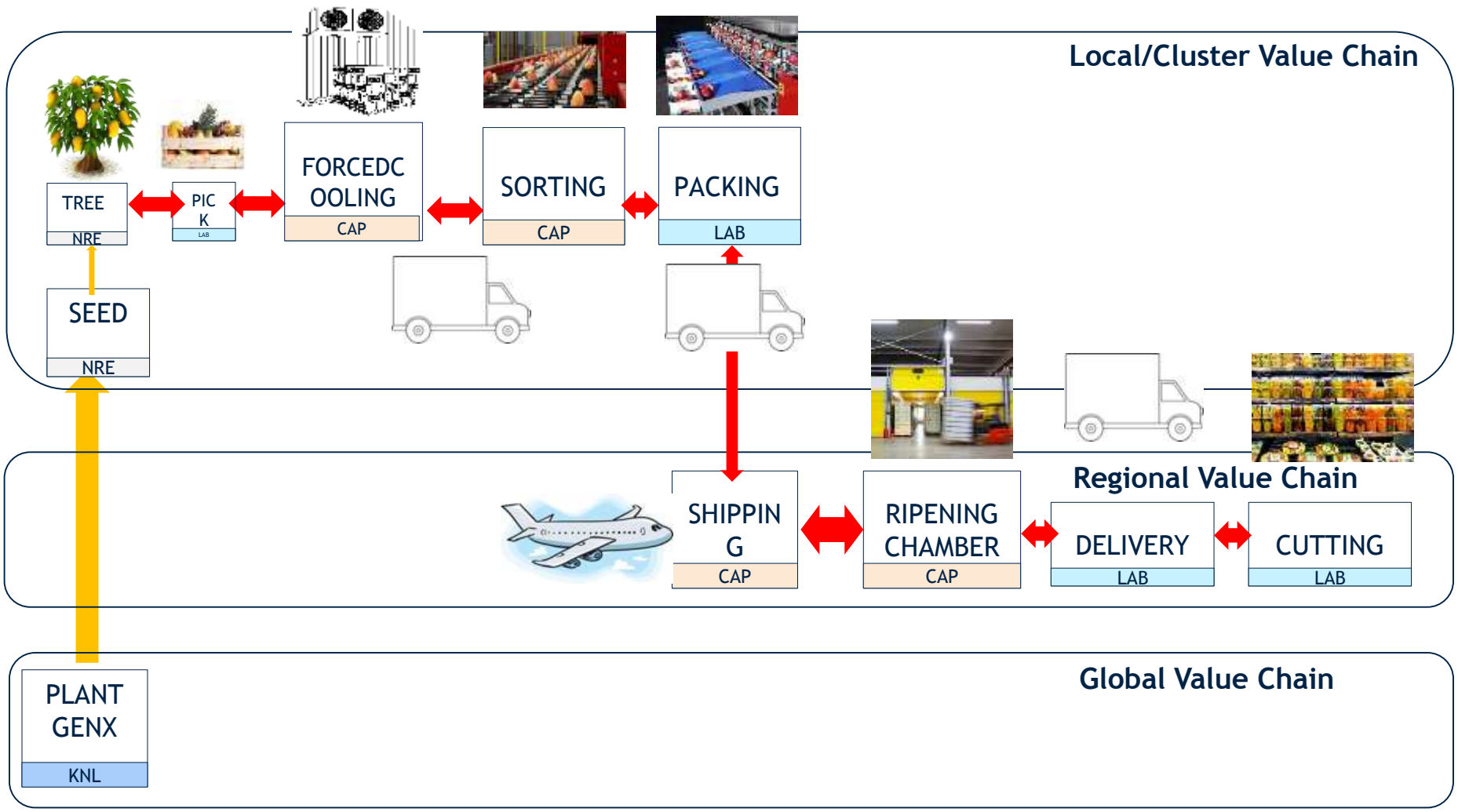
Mango Ideal Value Chain: Strategic Segment Ready2Eat (Ripened) MANGO



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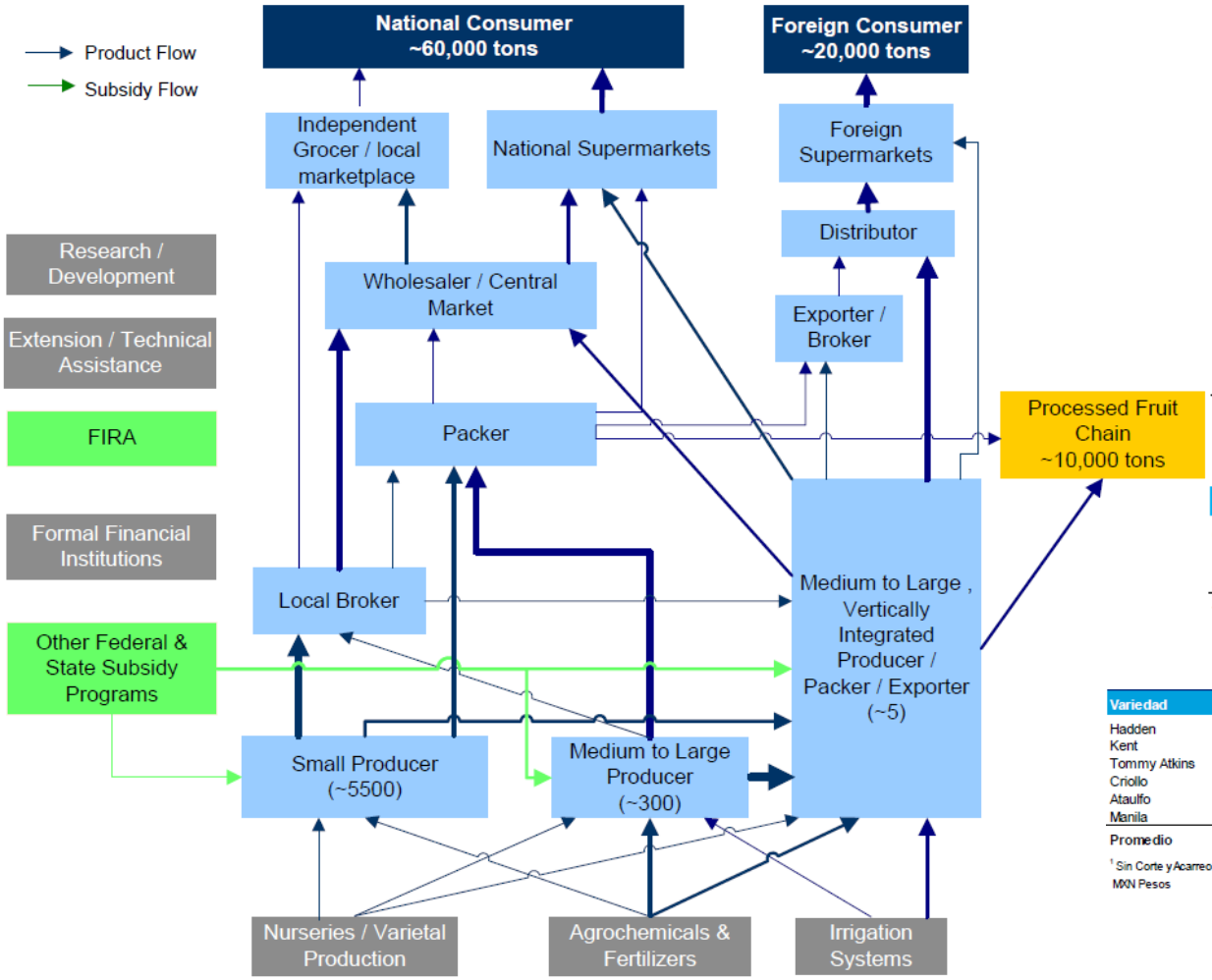
Mango Value Chain in Chiapas: what do we have?



(Source: USAID, 2008)

Costos por Caja de Mangos (10.lb - 5.0 kilos)	
Concepto	$ (USD)
+ Maquila	0.70
+ Caja	0.39
+ Etiqueta	0.02
+ Copret	0.10
+ Tarima	0.10
Total	1.31

Costos por Caja de Mangos (10.lb - 5.0 kilos)	
Concepto	$ (USD)
+ Flete	0.35
Total	0.35

Variedad	Costos de Producción [1]	Precio de Venta a Empaque	Margen Utilidad
Hadden	$ 0.55	$ 2.20	75.2%
Kent	0.55	2.20	75.2%
Tommy Atkins	0.55	2.20	75.2%
Criollo	0.55	2.20	75.2%
Ataulfo	0.55	2.20	75.2%
Manila	0.55	2.20	75.2%
Promedio	0.55	2.20	75.2%

[1] Sin Corte y Acarreo
MXN Pesos

(Source: SAGARPA, 2009)

Variedad	Costos de Producción [1]	Costos de Empaque	Costos de Transporte	Costo Total
Hadden	$ 1.05	$ 3.56	$ 0.95	$ 5.56
Ataulfo	1.05	3.56	0.95	5.56
Kent	1.05	3.56	0.95	5.56
Keitt	1.05	3.56	0.95	5.56
Tommy Atkins	1.05	3.56	0.95	5.56
Promedio	1.05	3.56	0.95	5.56

How can Chiapas move to the Strategic Segment "Ready2Eat Mango"?

…para la Discusión en las Mesas de Trabajo Sectoriales…

Construction Materials – Overview.

Construction Materials Industry Overview in Mexico

CONTEXT OVERVIEW

Construction is a significant sector for Mexico's economy:

- Employs 3.7 m workers out of 45m and makes for 8% of GDP
- 2nd largest in the region and dominated by a few large players (ICA, Carso)

Mexico's construction materials market is typically correlated to the infrastructure, residential and non-residential construction cycles:

- After declining from 2012 through Q3 2014, recovery in the sector is expected to gain traction in 2015
- Recovery will be driven by the residential sector and an uptick in infrastructure investment associated with the Energy Reform and the deployment of the USD600bn National Infrastructure Plan
- Large and mid-sized players have announced plans for capital investments in 2015 and expect positive growth rates (8% for concrete producers, 3-5% for domestic cement demand, and 15% for some specialized materials).

Main Construction Materials

1. **Cement, Concrete, Plaster, Lime**

- Cement capacity 60Mt, 32 plants
- Market dominated by Cemex (50%), Holcim (22%) Cruz Azul, Moctezuma Cementos de Chihuahua

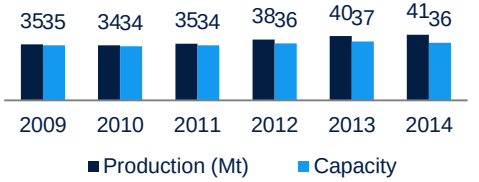
2. **Steel, Aluminum, other metals**

- Steel production 19Mt (+7%)
- 13th global producer / 2nd LAC
- Market 85-controlled by Arcelor, AMHSA, Ternium, De Acero and TAMSA

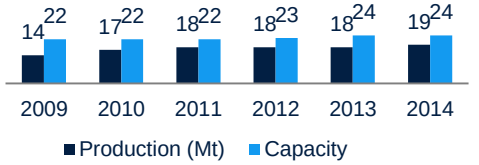
3. **Glass Materials & others:**

- Others include: aggregates, Marble & Other Stone, Clay and Ceramic, Rubber and Plastic, Paints and Varnishes, Wood Based Products, Other Innovative

Cement Production & Consumption (Mt)



Steel Production & Consumption (Mt)



MARKET OPPORTUNITIES

Cement companies	Steel producers	Others
A consolidated market Large & sophisticated companies Barriers to entry (proximity to raw materials/transportation costs)	A consolidated market Large & sophisticated companies Barriers to entry (ownership of iron ore /local availability / large capex needs: US$ 3bn earmarked 2014-16)	Strong companies in clay/ceramics/tiles with strong growth in residential/commercial segments
A cyclical market Slow growth in main markets Highly leveraged, capex below optimum 2nd Energy Consumer: 9%	Low growth (10Y CAGR of 1.4%) Dependence on automobile sector 1st Energy Consumer: 14%	Small companies / more fragmented market in the other subsectors

Construction Materials Industry: What do we have in Chiapas?

Wood Industry in Chiapas:

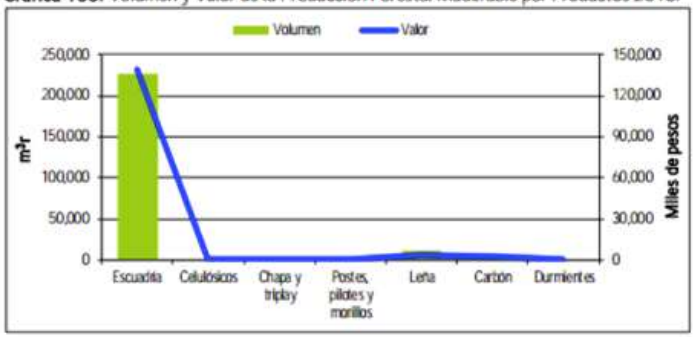
- Product is mostly timber blocks (‘escuadras’) from pine tree
- Low critical mass: only 24 companies >11 employees.
- Over 600 <5 employees, 200 of which in distribution and 322 in wood construction materials
- Timber and carton production: **Pine tree** = 186,000 m3 / 244,000 total basic transformation
- Production is scattered across northern regions
- Some concentration on wood for construction material
- **1,400 workers** (informality 50%)
- **435** economic units (INEGI)
- Production **111 mdp**
- GVA **38 mdp**

CHIAPAS

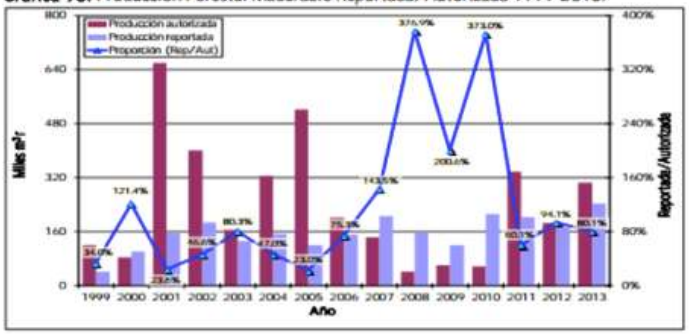
Gráfica 97. Producción Forestal Maderable y su Participación Porcentual 1999-2013.

CHIAPAS

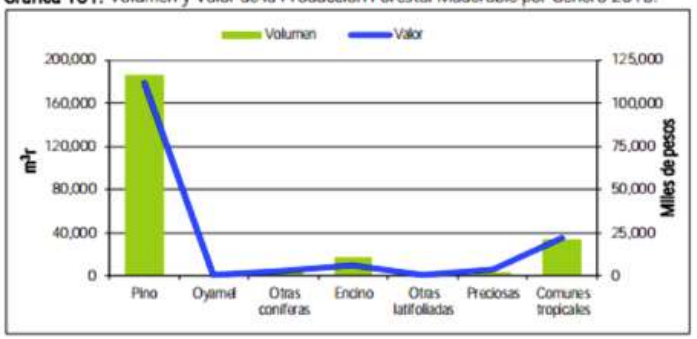
Gráfica 100. Volumen y Valor de la Producción Forestal Maderable por Productos 2013.



Gráfica 98. Producción Forestal Maderable Reportada/Autorizada 1999-2013.



Gráfica 101. Volumen y Valor de la Producción Forestal Maderable por Género 2013.



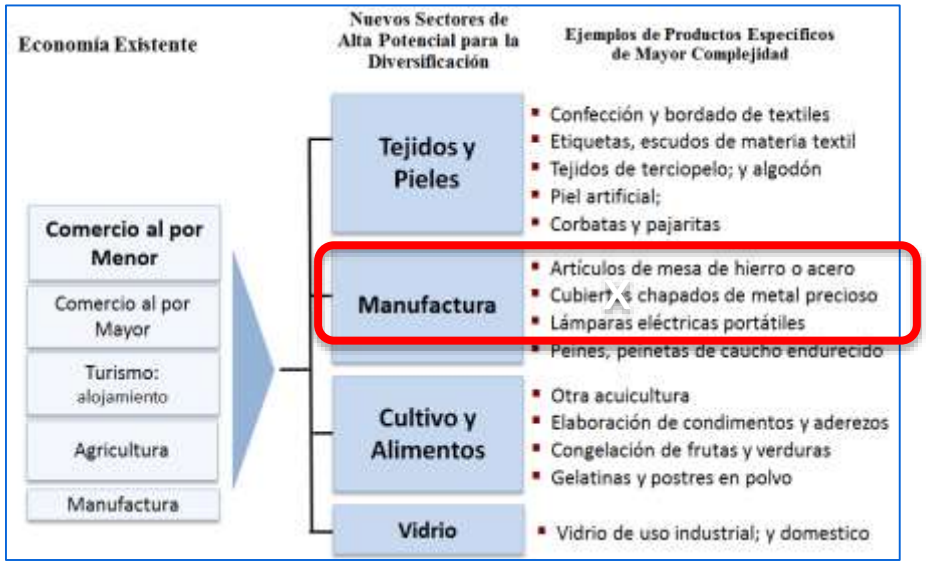
Construction Materials Industry: What do we have in Chiapas?

Metal Industry in Chiapas:

- Product is mostly basic metal structures
- Low critical mass: only 4 companies >10 employees.
- **4,340 workers** (high informality)
- **2,148** economic units (INEGI)
- Production **365 mdp**
- GVA **142 mdp**

TAPACHULA

COMITAN



SAN CRISTOBAL

The most important question: How can Chiapas leverage its wood and metal industries to reposition in Construction Materials?

…para la Discusión en las Mesas de Trabajo Sectoriales…

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Synergies with the SEZs Program

Industry Upgrading and Puerto Chiapas SEZ: What Next?

- Puerto Chiapas offers the potential to increase linkages with Guatemala and Central America in general
- but additional investments in connective infrastructure are necessary
- Exports of agricultural production from Chiapas through the port are possible, but improvements would be needed to facilitate higher value-added exports such as of fresh products.
- Upstream oil and gas development is possible, but would require dredging of Puerto Chiapas to be viable.
- Labor-intensive manufacturing can benefit from the availability of low-cost labor
- Much of this production is sold on the domestic market, making highway linkages relatively more important.

…para la Discusión en las Mesas de Trabajo Sectoriales…

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Thank You!