

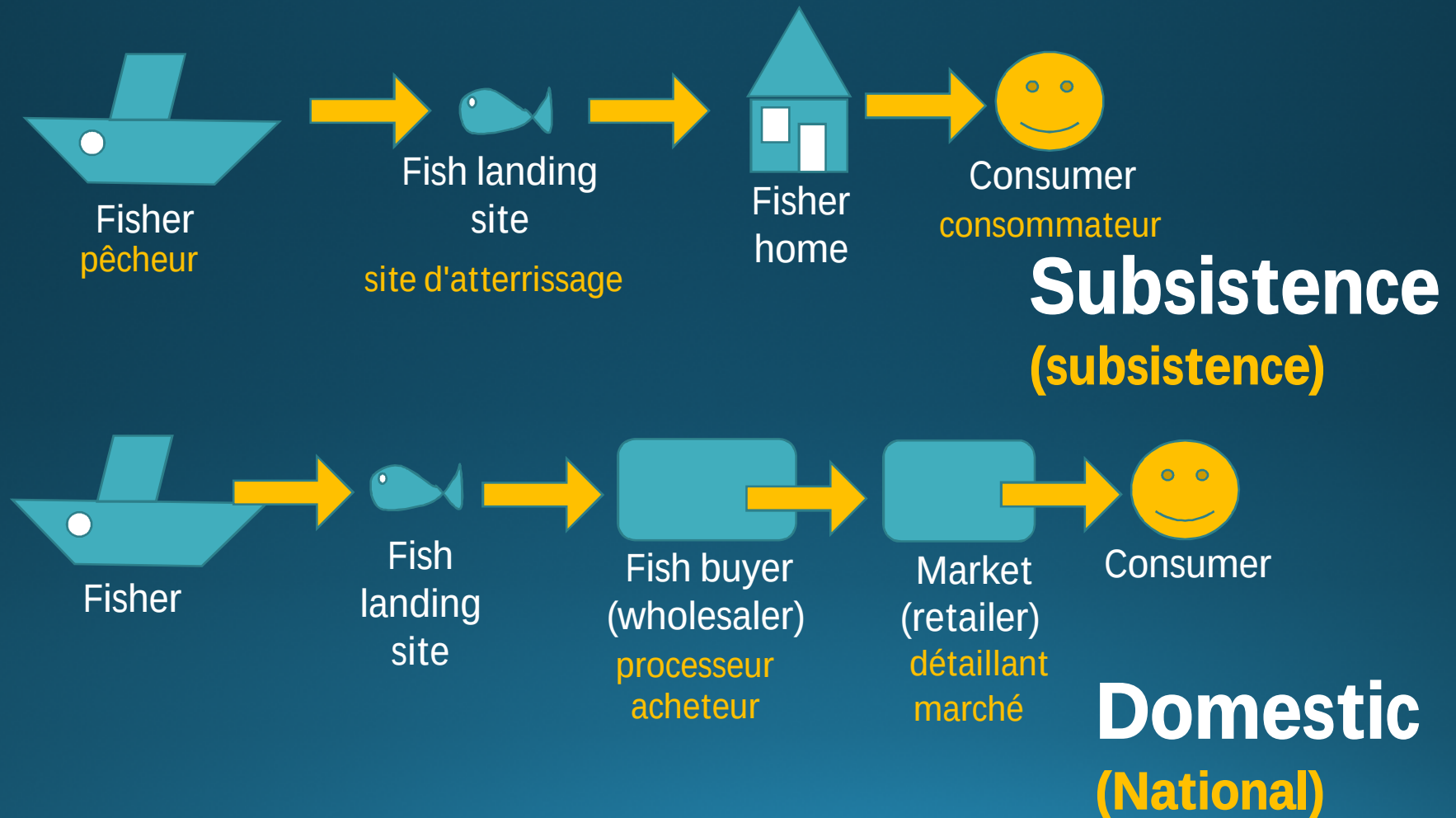
Vulnerability assessment of fisheries supply chains

chaîne d'approvisionnement pêche

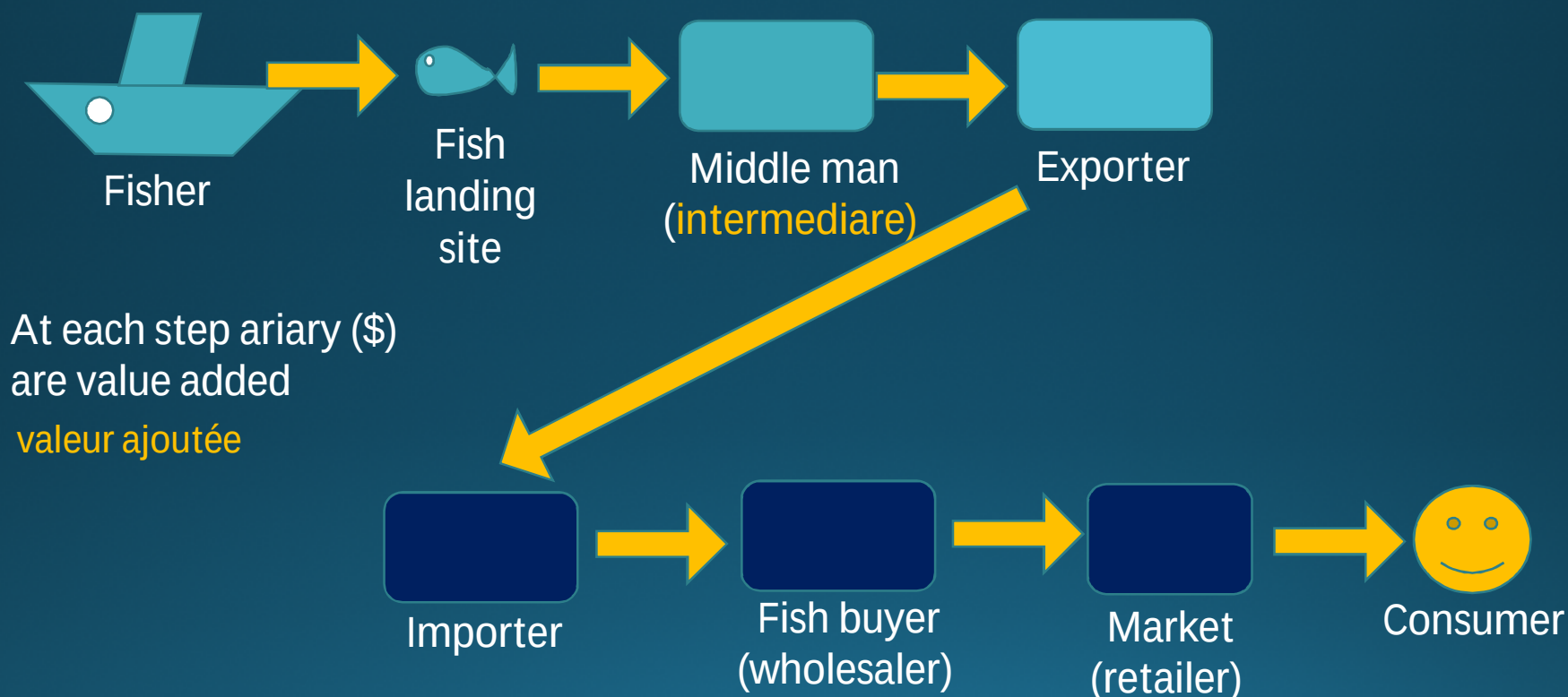
What are the impacts of climate change on the fisheries supply chain?
How will this affect Madagascar people?
What can be done about it?

Convenors: Ingrid van Putten and Éva Plagányi
CSIRO Oceans & Atmosphere (Australia)
Tom Chaigneau, Exeter University (United Kingdom)

Simplified fisheries supply chain



Export (exportation)



Where does climate change impact on supply chain

Ou se situe l'impacte de changement climatique sur la chaîne d'approvisionnement pêcheurie?

Climate change can impact at different points in the supply chain

A resilient supply chain can be defined as
“a supply chain with the ability to recover quickly from
unexpected events impacting supply chain performance”

Une chaîne d'approvisionnement de pêcheur résiliente

Supply chains

chaîne d'approvisionnement de pêche



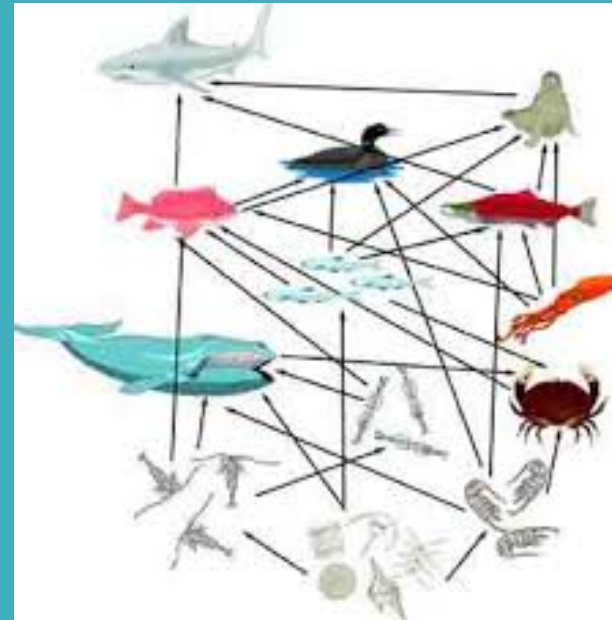
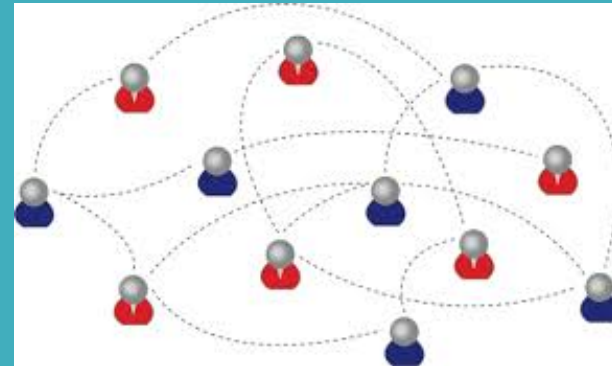
can be represented in similar way to

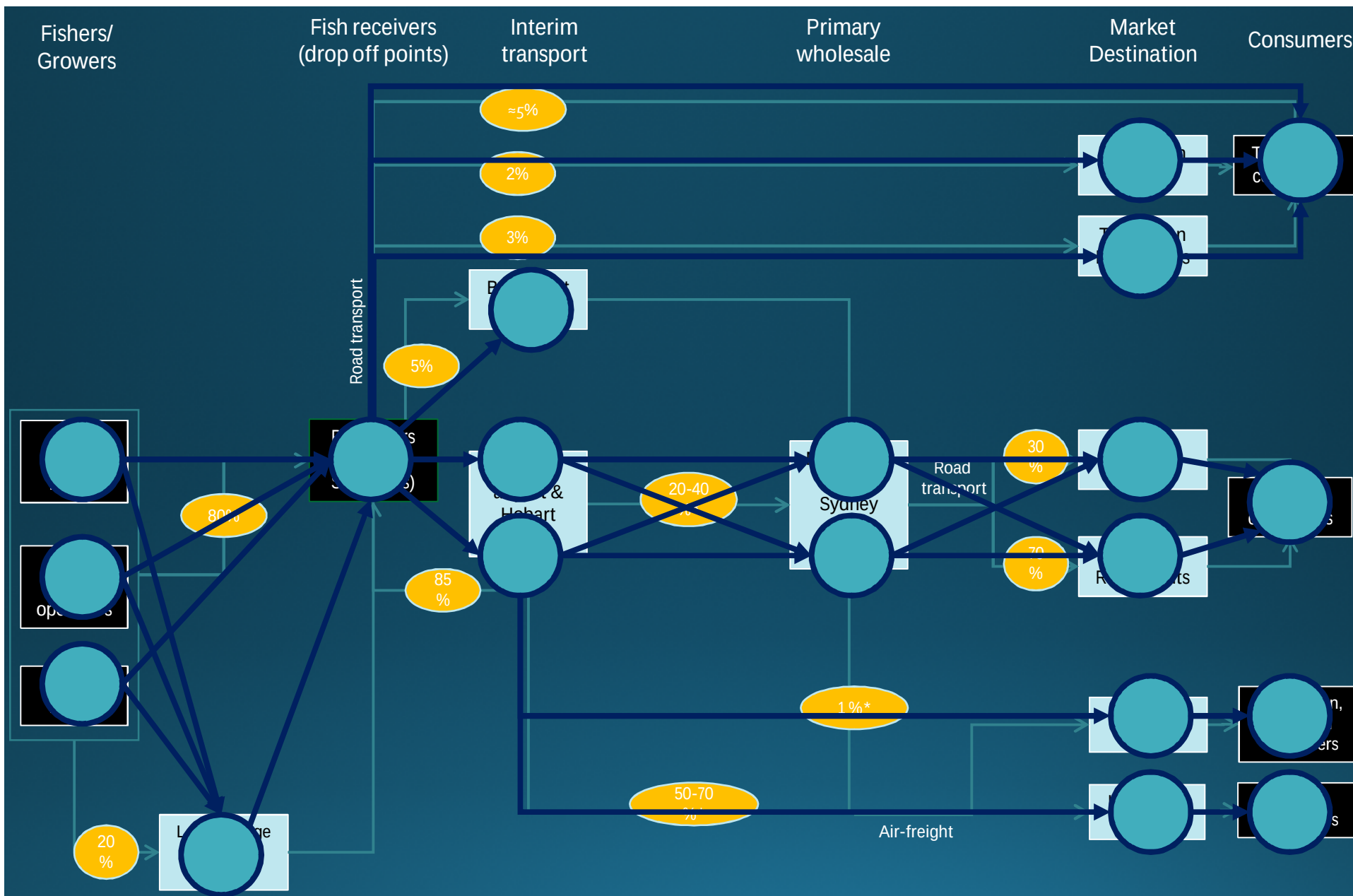
Peut être représenté comme

Social networks
(Réseaux sociaux)

&

Food webs
(Chaîne trophique)



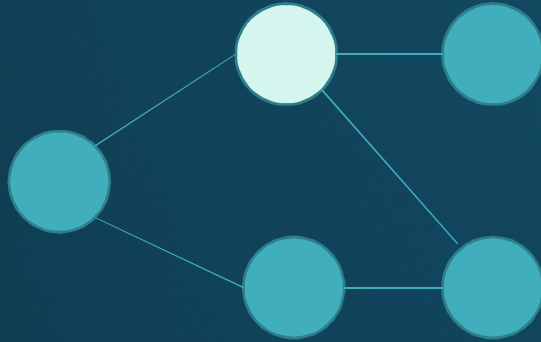


Tasmanian Southern Rock Lobster (SRL)

Critical components in supply chains|
Eva Plaganyi

Identify critical elements in the supply chain

Identifier l'élément critique dans la chaîne d'approvisionnement

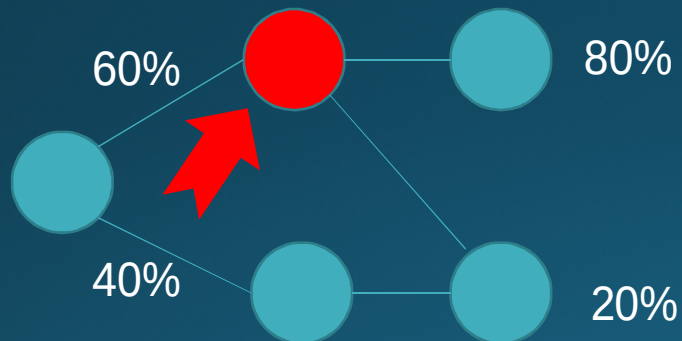


n =elements (here 5)

L =links (here also 5)

Links per node = L/n

Connectance = L/n^2



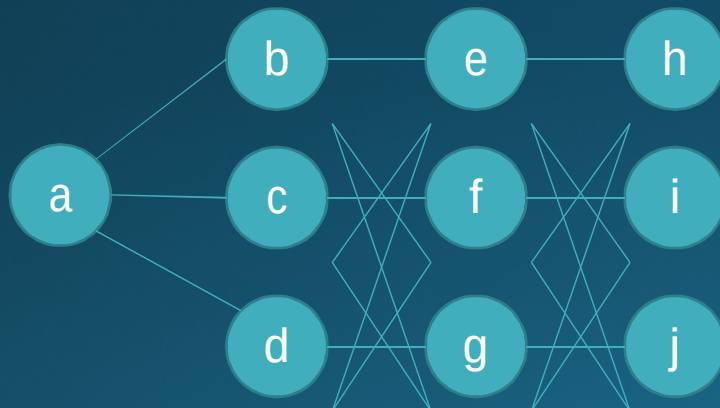
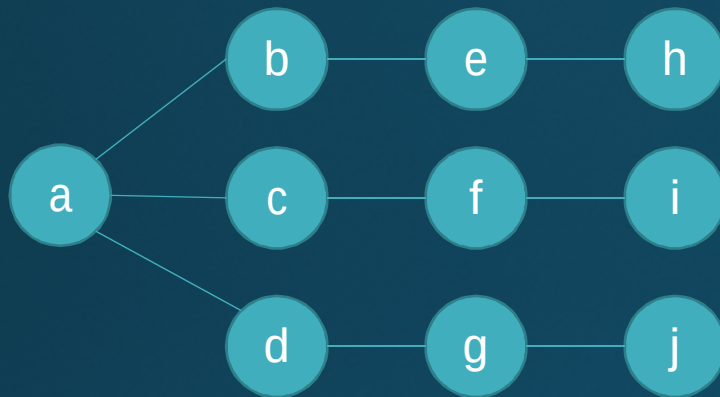
S_{ji} = proportion of product that flows into element



Compare supply chains

Comparer des chaînes d'approvisionnement

Supply Chain Index (SCI_j)
per receiver



Standardised SCI for supply chain

$$SCI_j = \sum_{i=1}^n s_{ji} p_j^2$$

$$SCIT = \sum_{i=1}^n SCI_j$$

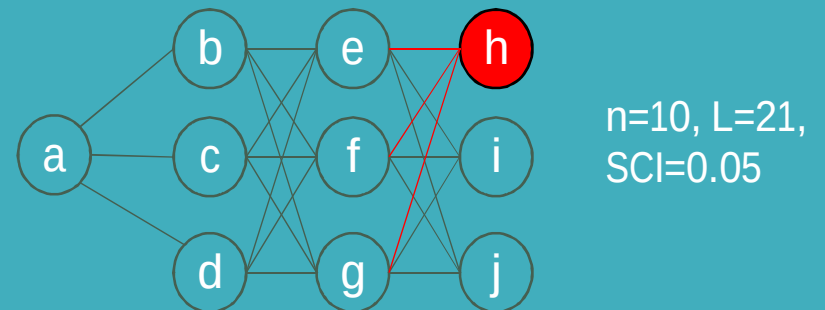
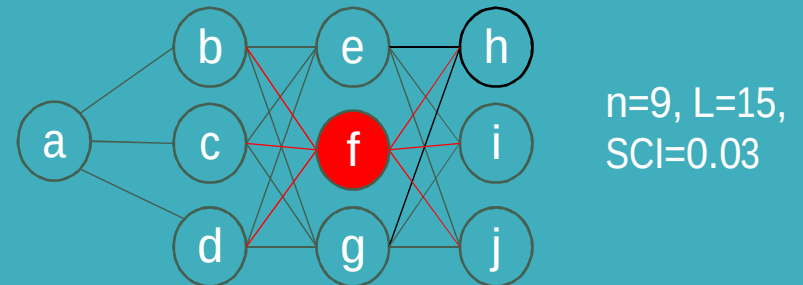
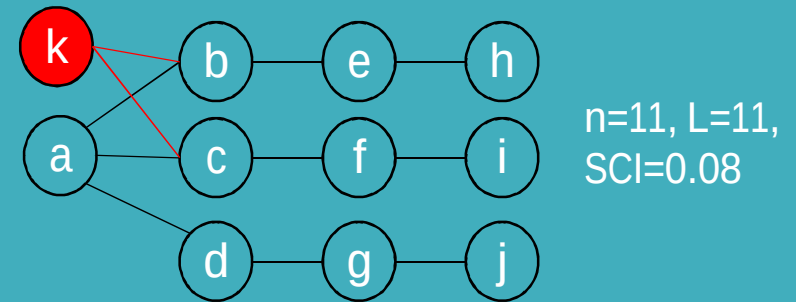
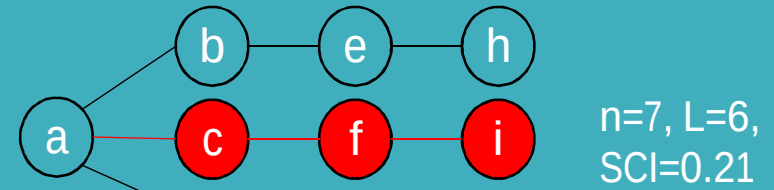
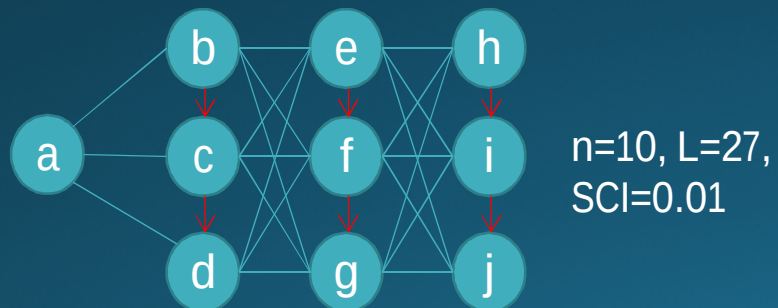
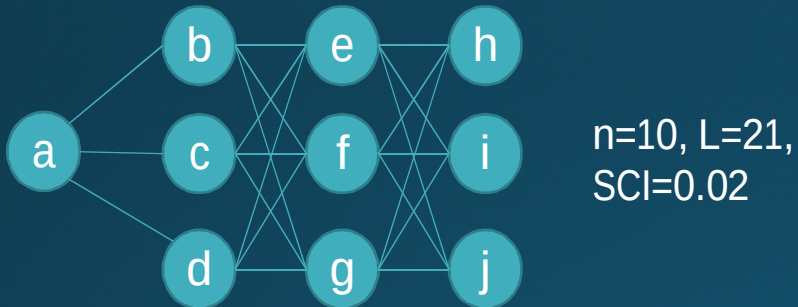
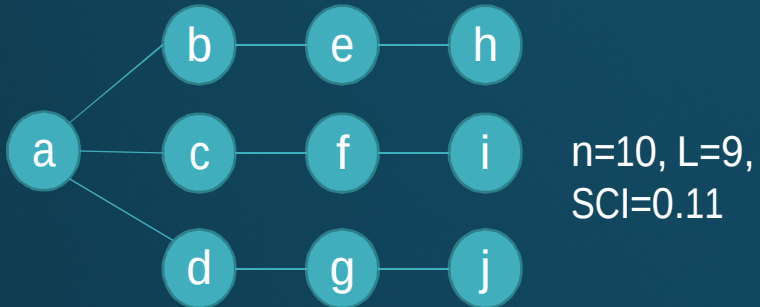
$$SCI = \frac{SCIT}{L}$$

Less resilient:
SCI=0.11

Un indice pour la chaîne
d'approvisionnement

More resilient:
SCI=0.02

Smaller number is better
(le plus petit c'est mieux)



Classification of Malagasy fisheries

What do Malagasy fishery supply chains look like?

Is there an intuitive classification system (typology)?

Est ce que il y a une classification intuitive pour la chaîne
d'approvisionnement pêcheurie en Madagascar

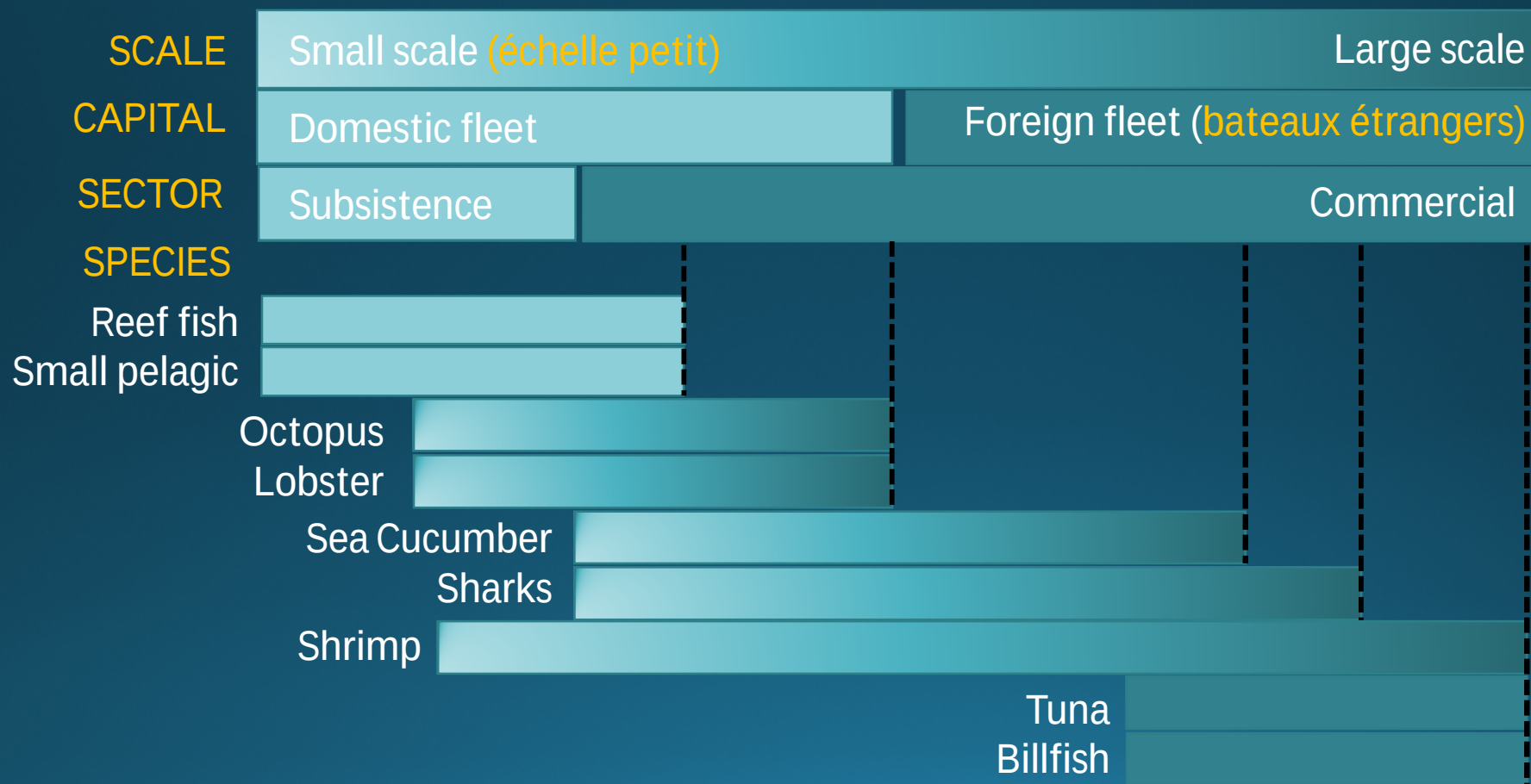
Subsistence catch	60,000 tonnes (FAO 2011)
Domestic catch	136,000 tonnes (Le Manach 2011)
Export catch	80,000 tonnes (WAVES 2012)

Source:

Le Manach et al 2011, 2012

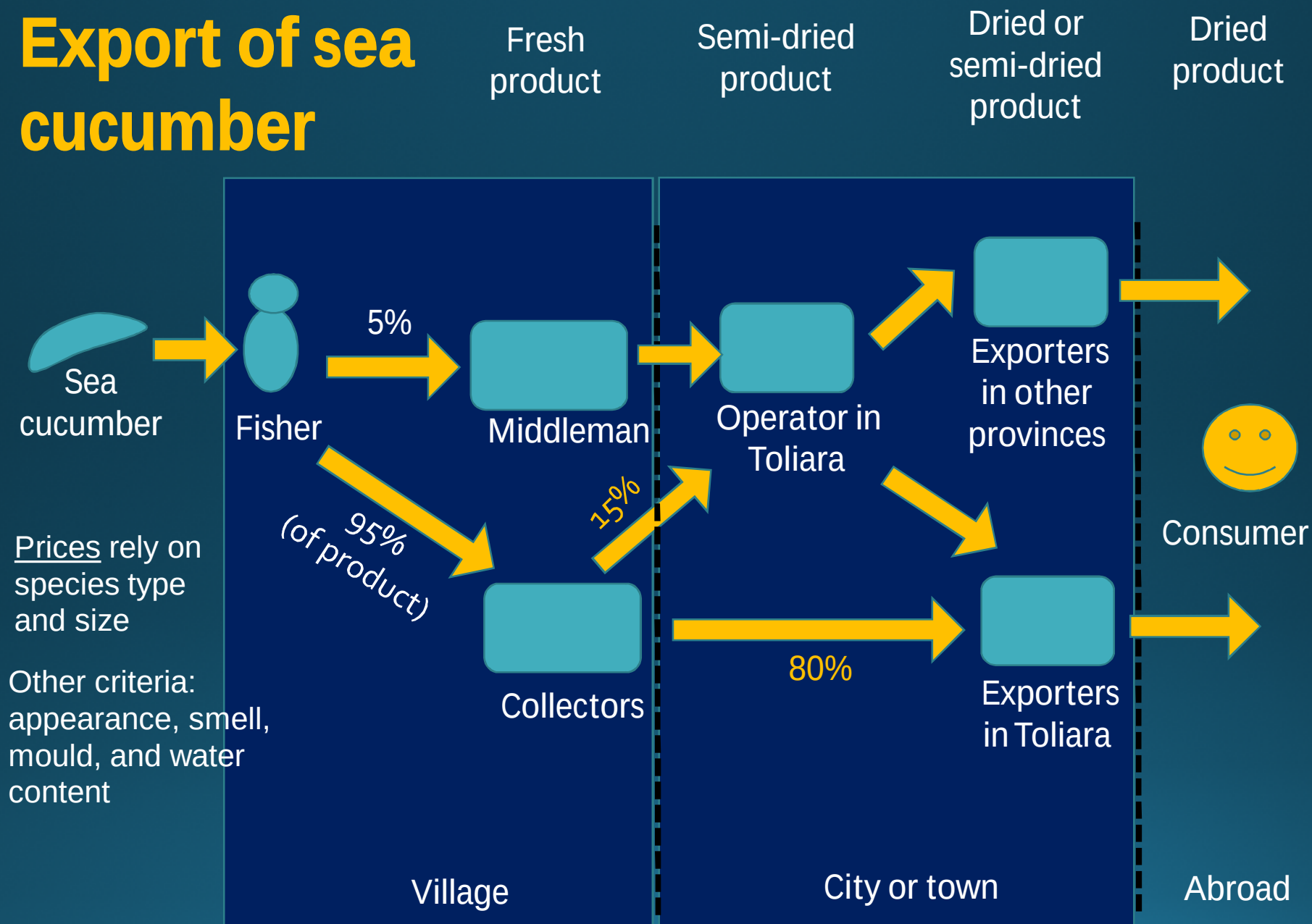
WAVES 2012

Classification of fisheries



Source:
 Le Manach et al 2011, 2012
 WAVES 2012

Export of sea cucumber



Source:
Thierry Lavitra et al 2008

How many people in the supply chain will be vulnerable?

- 1 Identify A-B-C-D for some Madagascar fisheries (e.g who/qui and where/où and what/quelle product)
- 2 Identify modes of transport for i-ii-iii (e.g truck - plane)
- 3 If possible estimate amount/montant (kilo/ tonnes) and added value/valeur ajoutée at each stage (e.g. fish is sold for 5000Ar/kg at B and 6000 Ar/kg at C)

