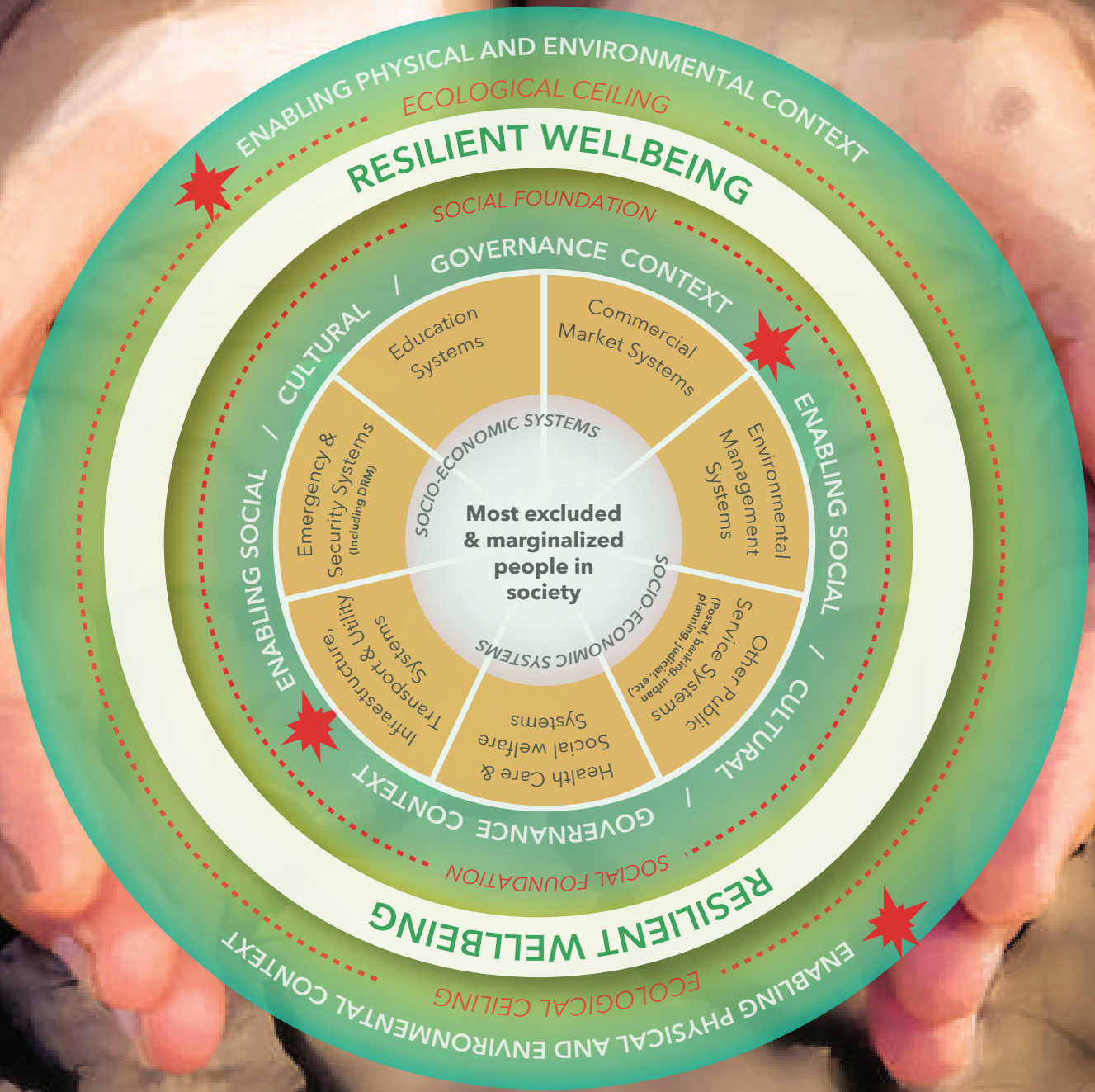
R4S Approach

Analysis of the Resilience for Social Systems



GOAL

What is the R4S Approach?

'R4S' or Resilience for Social Systems is an approach to analyzing the resilience of socio-economic systems. GOAL recognizes that societies are made up of socio-economic systems which service the needs of their populations and that addressing recurrent crises and effectively building resilience requires an integrated systems approach. Where these systems are fragile and large portions of the population are socially or economically marginalized, communities are highly susceptible to external shocks and stresses; coordination among stakeholders to strengthen these systems will ultimately improve resilience and lead to sustainable development. R4S is an innovative approach to build resilience of vulnerable communities using a systems approach.

Why use the Resilience for Social Systems (R4S) Approach?

Shocks and stresses impact on social systems and reverse hard earned development gains disproportionately affecting the poorest and most vulnerable. Resilience of vulnerable populations to hazards is related to how well critical social systems are functioning for vulnerable populations in normal times and during in times of crisis. The R4S Approach was developed to inform a resilience approach to the implementation of humanitarian and development interventions by improving understanding of social systems and how they react to shocks and stresses. Humanitarian and development programmes which do not account for the resilience of vulnerable groups or the socio-economic systems on which they depend are much more likely to result in negative consequences in the short and/or long-term. The R4S Approach intends to address this need by providing a mechanism for selecting and analyzing the current resilience state of critical socio-economic systems and provide recommendations on how to build or strengthen the resilience of these systems.

"Resilience is the the ability to bounce back and return to a fixed stable state of equilibrium following a shock."

Holling 1973 in Béné et al. 2012

"System's thinking allows people to make their understanding about social systems explicit and improve them."

Aronson, 1998

Analytical Framework for Resilience of Social Systems

GOAL´s Analytical Framework for Resilience of Social Systems depicts the target group (eg. household, community) at the center, operating within or interacting with socio-economic systems that influence the target group's overall well-being, which are in turn immersed in a general and broader encompassing context that is composed of two levels: (1) The 'Social/Cultural/Governance' context and (2) the 'Physical and Environmental' context.

The Resilience Wheel depicts (7) categories of socio-economic systems:

1. Education Systems
2. Emergency & Security Systems (including Disaster Risk Management)
3. Infrastructure, Transport & Utility Systems
4. Health Care & Social Welfare Systems
5. Commercial Market Systems
6. Environmental Management Systems
7. Public Administration Systems (urban planning, judicial system, etc.)

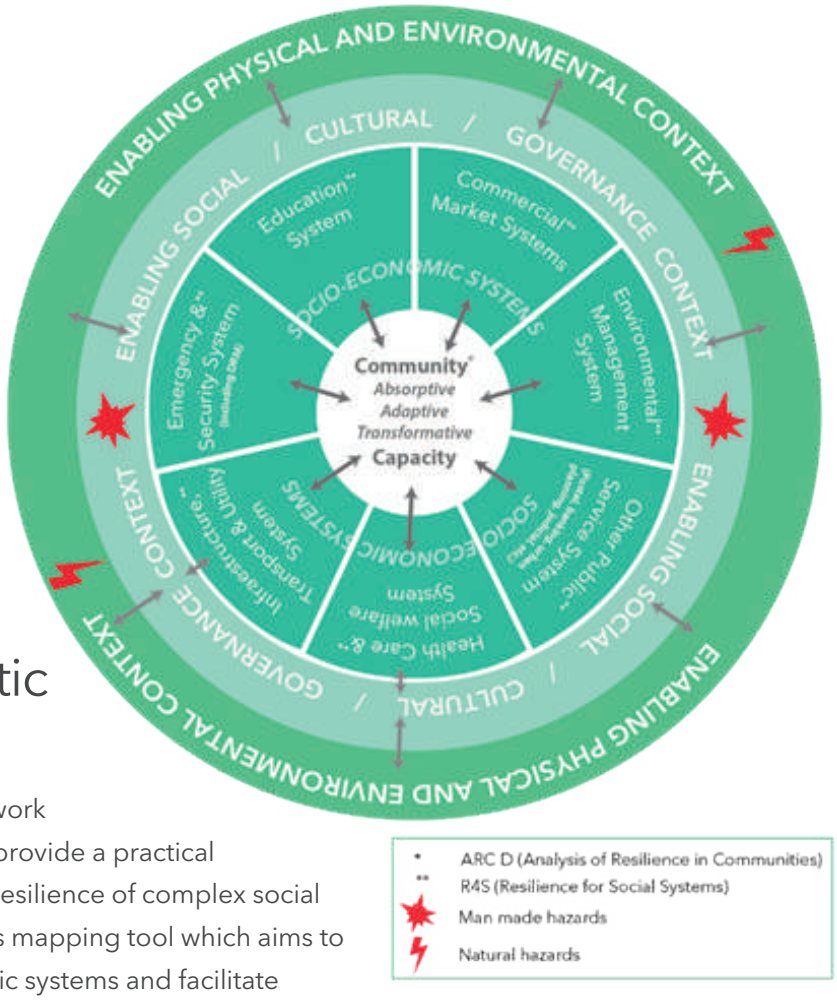


Figure 1. GOAL's Resilience Wheel

How the R4S Approach differs from other diagnostic tools?

The R4S Approach applies Systems Thinking, Network Theory, Scenario Thinking and Resilience tools to provide a practical and structured step by step process to assess the resilience of complex social systems. One of the central innovations in R4S is its mapping tool which aims to improve understanding of complex socio-economic systems and facilitate analysis of these systems. R4S also provides new guidance on analyzing determinant factors of resilient systems including Connectivity, Diversity, Redundancy, Governance, Participation and Learning.

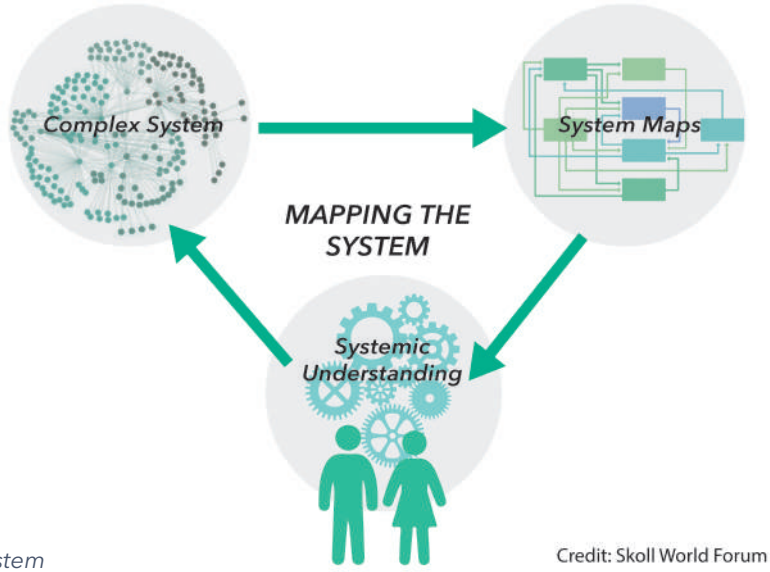


Figure 2. Mapping the system

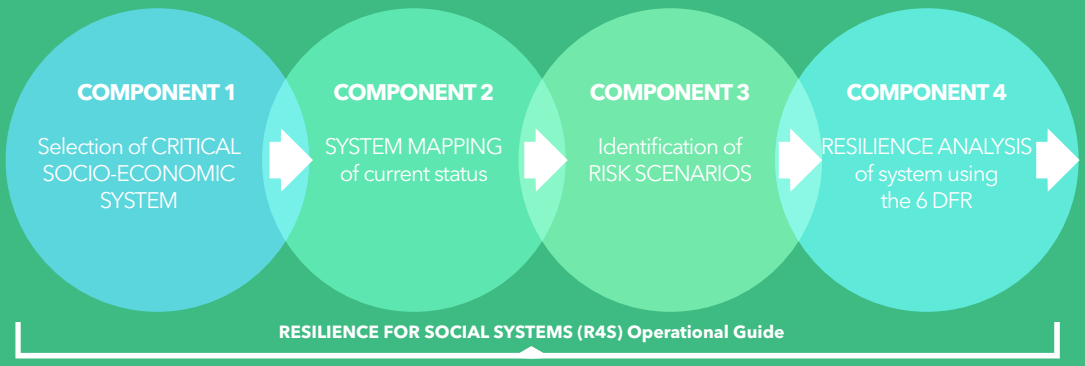
6 Determinant Factors of Resilience

After a comprehensive study and analysis of the elements that determine the resilience of a system (ecological, social or commercial) the Resilience for Social Systems (R4S) Approach has chosen the following as the metrics for measuring resilience:

1. Connectivity: The degree to which a system transfers the impact of shocks and stresses across a system reducing the degree of impact a single or small group of actor nodes (i.e. target group) receives. Connectivity should be viewed from the perspective of ensuring the system's functionality and the protection afforded to the target group.
2. Diversity: Refers to the different forms through which a system can function, which are sufficiently different such that a single risk scenario will not disable the entire system's functionality. A good level of Diversity will allow the system to continue functioning in different or adapted ways when impacted by shocks/stresses.
3. Redundancy: Having a back-up plan through which the system continues to function, should some actors become unavailable after being impacted by shocks and stresses. It refers to having a sufficient number and capacity of actors that can continue carrying out the system's functions.
4. Governance: From a system's resilience perspective Governance relates to whether the system has the capacity to take decisions and act as a whole using complex adaptive thinking. Reflected through how actors throughout the system become aware of potential risks, how they organize themselves to make decisions to face those risks and if through these decisions the system's leader(s) are able to guide the system to a position of an acceptable level of impact ensuring the system's functionality.
5. Participation: Refers to how inclusive the system is in taking into account the needs of vulnerable or disadvantaged actors. Does the system function in benefit of only a small group of the overall system actors, does it make the provision to protect vulnerable groups, what is the degree of freedom to associate, participate and speak?
6. Learning: Reflects how the system as a whole learns through feedback loops in response to past experiences or proactively from learning exchanges. Does it show Learning at the individual and group level, through practices, interactions and processes?

Structure of the R4S Approach

The Resilience for Social Systems (R4S) Approach is structured into four key components as follows:



How will the R4S Approach measure the resilience of a social system?

The R4S Guidance Manual describes the series of steps to be followed and the specific frameworks and tools to select and analyse socio-economic systems.

COMPONENT 1. Selection of critical socio-economic systems based on Relevance, Opportunity, Feasibility and Resilience[1].

Component 1 includes:

1. Context Analysis
   -Determination of target groups
2. Review of Resilience Strategies for target group.
3. Identification of Critical Socio-Economic Systems.
3. Determination of Key Performance Indicators

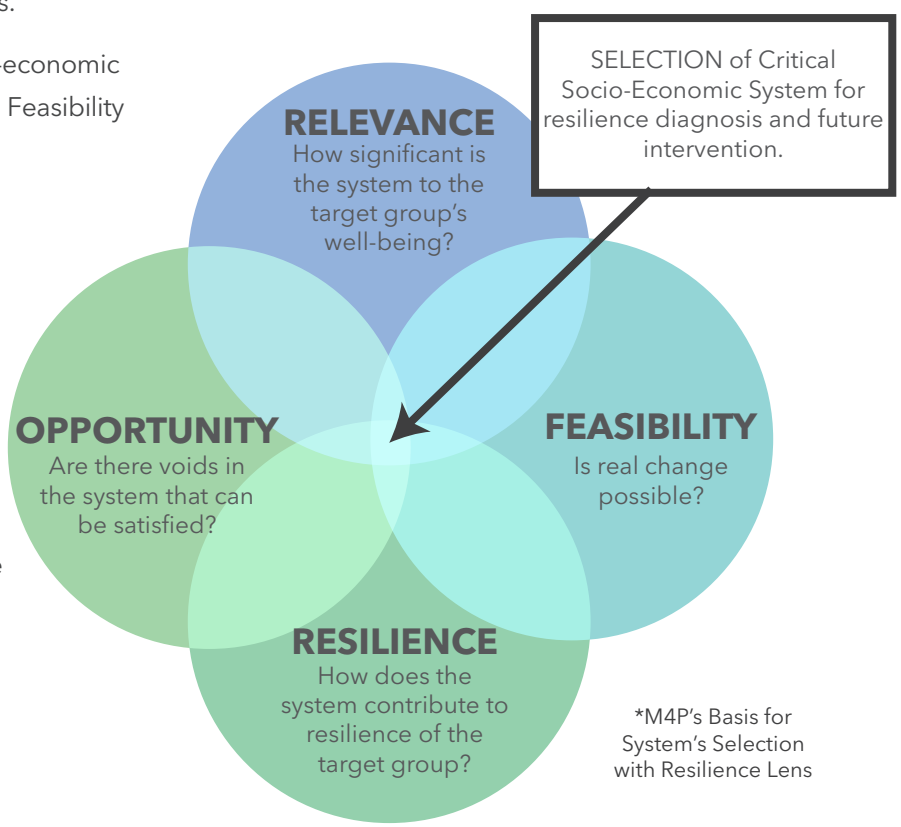


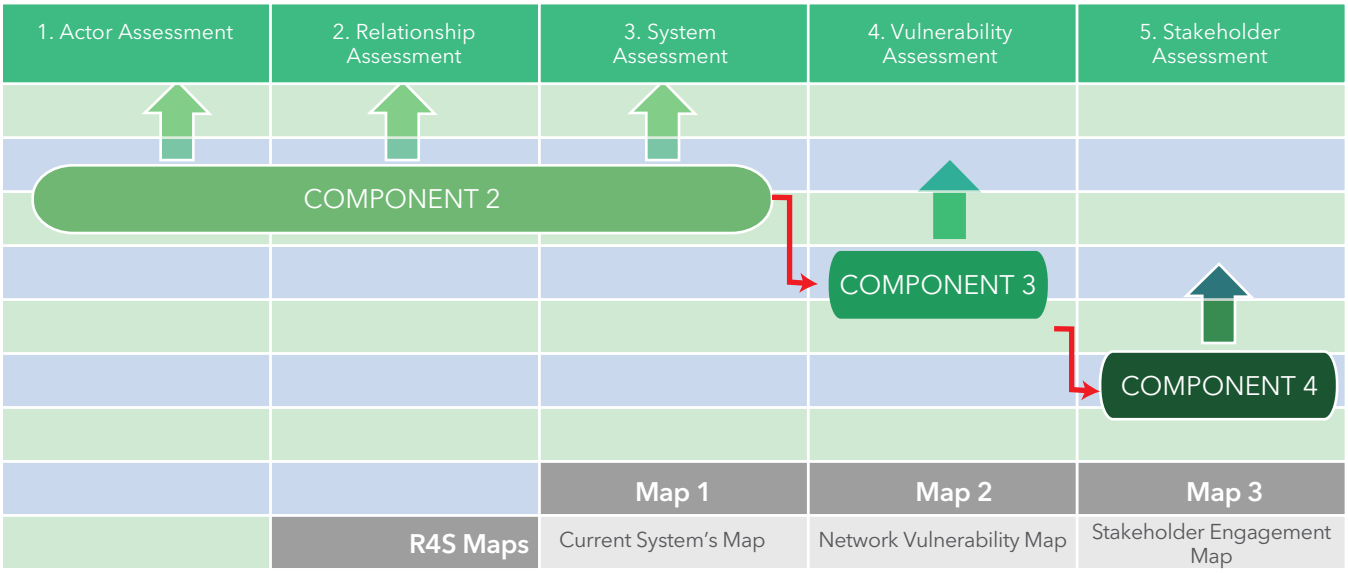
Figure 3. Basis for Socio-Economic System Selection

1 The Springfield Centre's basis for a system's selection with a resilience lens proposed by R4S.

COMPONENT 2. System Mapping of the Current Status of Selected Socio-Economic System(s)

The Stakeholder Assessment Matrix (SAM) is a tool designed to process the stakeholder information and proceed to develop R4S System Maps (an iterative process will occur between the 'SAM' and the different SystemMaps).

Stakeholder Assessment Matrix (SAM)



The R4S System Maps represent the system's architecture, with the commercial or non-commercial transactional process of the system in the middle section (value chain) with the target group clearly identified, and the supporting functions of the system (in the upper green section) and critical regulatory functions (in the bottom orange section) of the system´s enabling environment (Refer to *Figure 6*). R4S maps are a compilation of information gathered through an iterative process which is constantly updated as understanding of the system deepens and new data is collected in consultation with market actors.

COMPONENT 3. Identification and Selection of Risk Scenarios with Potential to Affect the selected systems.

Component 3 includes:

1. Determination scope of risk analysis
2. Analysis of risk landscape
3. Determination of root risks and secondary risks (cause and effect)
4. Evaluation of probability of occurrence of root risks
5. Determination of risk scenarios for 'Vulnerability Assessment' (in Stakeholder Assessment Matrix)
6. Development of a Network Vulnerability Map based on the identified risk scenarios

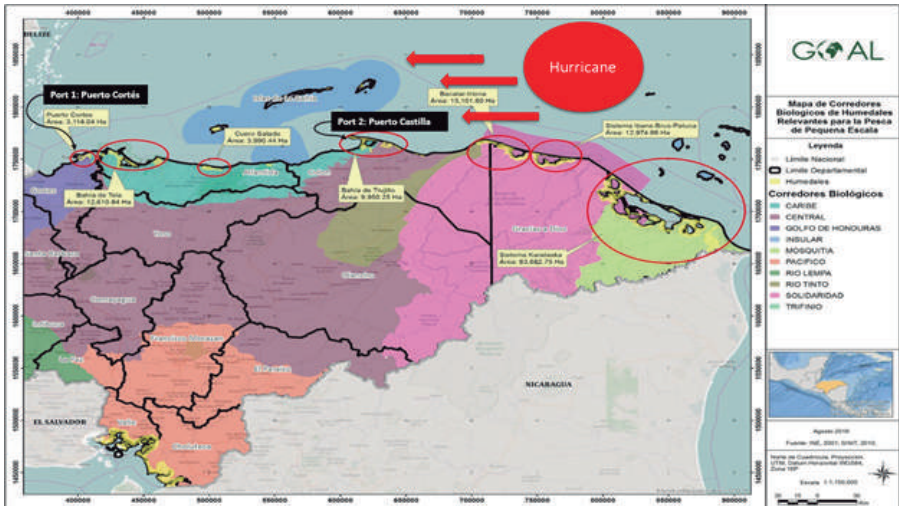


Figure 4. Selection of Risk Scenarios

COMPONENT 4. Resilience Analysis of Critical Socio-Economic System Based on the 6 Determinant Factors of Resilience.

Under component 4 the System Map is analysed against the risk scenarios using the following steps:

1. Resilience Analysis against the 6 Determinant Factors of Resilience (Refer to *Figure 5*)
2. Stakeholder Engagement Map
3. Theory of Change
4. Ideal System's Map (Refer to *Figure 7)*

	Level and Category	Description
1	No or Minimal Connectivity/Diversity/ Redundancy/Governance/Participation/Learning	Little awareness of issues and no action.
2	Low Connectivity/Diversity/ Redundancy/Governance/Participation/Learning	Some awareness and motivation, some action, but action is piecemeal and short-term
3	Medium Connectivity/Diversity/ Redundancy/Governance/Participation/Learning	Awareness and long-term actions, but these are not linked to a long-term strategy and/or not all aspects of the problem are addressed
4	Approaching Optimal Connectivity/Diversity/ Redundancy/Governance/Participation/Learning	Actions are long-term, linked to strategy and address main aspects of the issue, but there are still deficiencies (especially systemic) in implementation
5	Optimal Connectivity/Diversity/ Redundancy/Governance/Participation/Learning	Actions long-term, linked to strategy, addressing all aspects of the issue, embedded in society and sustainablelly systemic) in implementation

Figure 5. Resilience Analysis against the 6 Determinant Factors of Resilience

Guidance Manual

The *R4S Operational Guide* provides users with a detailed description of the steps of each of the 4 Components and tools and frameworks necessary for the resilience diagnosis of socio-economic systems, it also contains the rationale and theory behind its development.

Who should use the R4S Approach?

- Any organization in the process of shaping its thinking around disaster resilience and one who needs a disaster-focused overview of resilience, as well as a comprehensive understanding of social systems.

- Organizations with a long-term commitment and portfolio in disaster resilience, who need a "view of the forest" to inform the strategic direction of their programming.

- National and local governments who want to understand the disaster resilience of key systems to identify areas of weakness and better coordinate their efforts and those of organizations working in their areas.

- Organizations active in advocacy and government departments needing evidence to shape policy decisions for socioe-conomic systems.

RESILIENCE FOR SOCIAL SYSTEMS 'R4S' APPROACH
CURRENT SYSTEM MAP

System: Small-Scale Fisheries Market System in the Honduran North Atlantic Coast

Date: May/2019 • Revision Number: 03
Prepared by: Mario Argeñal/ Gabriela Cáceres/ Ana Córdova/ Carlos Villatoro/ Darwin Castillo/ Sayri Molina
Reviewed by: Luigi Loddo/ Bernard McCaul

The 'R4S' Current System Map represents from 15-20,000 small-scale fishermen who fish around 8-10,000 metric tonnes of fish per year off the North Atlantic coast of Honduras and whose System operates with the involvement of around 35 different types of actors. The data collected corresponds to the period: December 2015 – March 2019.

SUPPORTING FUNCTIONS

Market Players' Coordination

Market Players' Coordination
- Inter-institutional Committees
- Wetland's Councils

Stock management

Scientific Investigation
- UNAH
- CORAL
- WWF
- GOAL
- CEM
- CCO
- UICN

Transaction Chain
INPUT

Business Development Services
- INFOP
- CONEANFO
- CDE

Business Drivers
- COMANAGERS
- CDE
- SDE
- GOAL

Training in Good Fishing Practices
- DIGEPESCA
- INFOP

Salt (Input suppliers)
- Bekin
- Mexican importing company
- local storages

Boats (Input suppliers)
- Local Shipyards
- Urban Shipyards

Fishing Gear (Input suppliers)
- Local Artisans
- Fishers' Associatons
- Urban Suppliers
- Local Grocery Stores
- Pesca Uno

Fuel (Input suppliers)
- TEXACO
- PUMA
- UNO
- Local Gas Stations

CAPTURE/ PRODUCERS

FISHERS (<15K) — Target Group
+/-8-10 K MT of fish

COLLECTION/ INTERMEDIARIES

Retail/ Local Intermediaries (+/-100)
Wholesales Intermediaries (+/-80)
Fishers' Businesses (5) — Target Group
- EMPROMARSA*
- COOPESPCOL*
- APAIB*
- LAREINI - LAWAN
- KAUMA

*Fishers' Associations

Collection Centers (+/- 29) — Target Group
- YAHURABILA
- CAPIRO JERICÓ
- CASTILLA
- APROCUS
- DELFINES DEL CARIBE
- TONINA BLANCA
- MARIÓN
- KRUTA - RÓBALO
- BRIT-PUT-TANGNI
- BUKARIMAT

High-Sea Intermediaries (+/53)

100 %
75 %
55 %
10 %
10 %
6 %
<1%
17 %
1%
1 %
3 %
3.8 %
<1%

Regulation of Fishery Resources
- DIGEPESCA
- INTER-INSTITUTIONAL COMMITTEES
- OSPESCA
- FAO
- NAVAL FORCES
- MERCHANT MARINE
- LOCAL GOVERNMENTS

Regulation of Forestry Resources and protected areas
- MI AMBIENTE
- ICF
- TASK FORCE
- LOCAL GOVERNMENTS
- CO - MANAGERS OF PROTECTED AREAS

Traceability System
- GOAL

REGULATORY FUNCTIONS

Natural Resources Regulation

PROCESSING PLANTS

Regulation of cross-border fishing
Weak relation, is not regulated as it should be, very weak chancelleries.
- NAVAL FORCES
- CHANCELLERY
- Cross-border Municipalities

Traceability
- DIGEPESCA
- SENASA
- OIRSA
- SUPERMARKET CHAINS
- Marine Stewardship Council

The Transaction Chain, in the middle of the map, demonstrates the volume of production that goes through the different distribution channels (or actors), from the producers all the way to the end consumers (It has been assumed nothing goes to waste). The Supporting Functions are in the top section of the map and the Regulatory Functions are in the bottom section; each containing 3 different levels of connectedness to the Target Group: Direct, Indirect or Absent Interrelationship.

LEGEND

RELATIONSHIP Quality

GOOD — BAD

STRESSED

ABSENT INTERRELATIONSHIP

INDIRECT INTERRELATIONSHIP

DIRECT INTERRELATIONSHIP

OUTPUT

Renewable Energy for Cold Storage:

SOLUZ · Cool boat · Tecnisol · Solaris

Business & financial services

Supplies & logistics services

Marketing/ Investigation- Information

CDE · GOAL

Financial Services

CO-OP CEIBEÑA · CAYCTOL · TIGO MONEY · FGR CONFIANZA · BANCO ATLÁNTIDA · CAYCSOL · FAMA · Informal Credit · CO-OP. SAGRADA FAMILIA · BANRURAL · BANCO DE LOS TRABAJADORES · Banca Solidaria · CREDISOL

Ice Suppliers (Input suppliers)

APAIB (* Fishers' Business) · EMPROMARSA · BUKARIMAT · KAUMA · Urban Markets · PROCESSING PLANTS · BRIT - PUT - TANGNI · COOPESPCOL

Equipment Repair Services

Local repair workshop · Fishermen · Yamaha Repair Workshop

Transportation Services

COSTA III · FRANK GOFF · LOS PLAYEROS (collective land-transport service)

Equipment Suppliers

Pesca Uno (Fishing gear) · Motors: Kawas' motors · YAMAHA · SUZUKI

RETAIL/ PROCESSING

CONSUMPTION

35 % $1.00 lb

20 % · 3 % · <1% · 6 % · 6 % · 3 % · 13.5 % · 4 % · <1% · 2 % · 3.8 % · <1% · 20 % · <1% · <1% · <1% · 17 % · 5 % · 7 % · <1% · 100 %

Street/Seasonal Vendors (+200)

Hotels /Restaurants (+/-150)

Processing Plants (+/-19)

Municipal Markets (9)

TOCOA · TRUJILLO · SAN PEDRO SULA · PUERTO CORTÉS · CHOLOMA · LA CEIBA · PROGRESO · TELA · TEGUCIGALPA

Supermarkets (3)

LA COLONIA · WALMART · LA ANTORCHA

KAUMA /GEOVANNY LEE · ALDASA · FINCOR · GRUPO MOON · other · FROZEN · MARUCO · MARINOS PESCADERÍA · MARISCOS DEL ATLÁNTICO

Local Consumer · National Consumer · Export

CONSUMERS (<15K)

Local Consumers (+/-50K) — 7,010 MT (70.10%)

National Consumers (+/- 1M) — 2,380 MT (23.80%)

Export (+/- 2M) — 610 MT (6.10%)

Fishers' Associations/ Cooperatives

Target Group

APEB · ASSN. PESCADORES LIMÓN · COLLECTION CENTERS · ASSN. CAYOS COCHINOS · ASSN. RÍO COCO · ASSN. IRIONA · OPESCOOR (COROZAL) · PAMUPEL · PAZCOBLA · APIMH · ASSN. PESCADORES STA ROSA AGUÁN · ASSN. NUEVA ARMENIA · PESCADORES DE TELA · ASSN. PESCADORES PLAN GRANDE · TRES PUEBLOS UNIDOS

Indigenous People's Rights Protection

MISKITO INDIGENOUS FEDERATION (MASTA) · TERRITORIAL COUNCILS OF GRACIAS A DIOS · PROSECUTOR'S OFFICE OF THE ETHNIC GROUPS · OFRANEH (GARIFUNAS' BOARDS) · DINAFROH · ILO · UN · APIMH

Municipalities (Operating permits) · Labour Law

Tax Regulation

SAR · Customs

Hygiene / Food safety standards

SENASA · SUPERMARKET CHAINS · SESAL · PROCESSING PLANTS

Governance

EWS/DRR Management

COPECO · CODEM

Early Warning & Response Systems (EWRS)

Business Operation Regulations/ Permits

Hygiene / Food Safety Security

GOAL

Irish Aid
An Roinn Gnóthaí Eachtracha agus Trádála
Department of Foreign Affairs and Trade

RESILIENCE FOR SOCIAL SYSTEMS 'R4S' APPROACH
STAKEHOLDER ENGAGEMENT MAP
Current System

System: Small-Scale Fisheries Market System in the Honduran North Atlantic Coast

Date: May/2019 · Revision Number: 03
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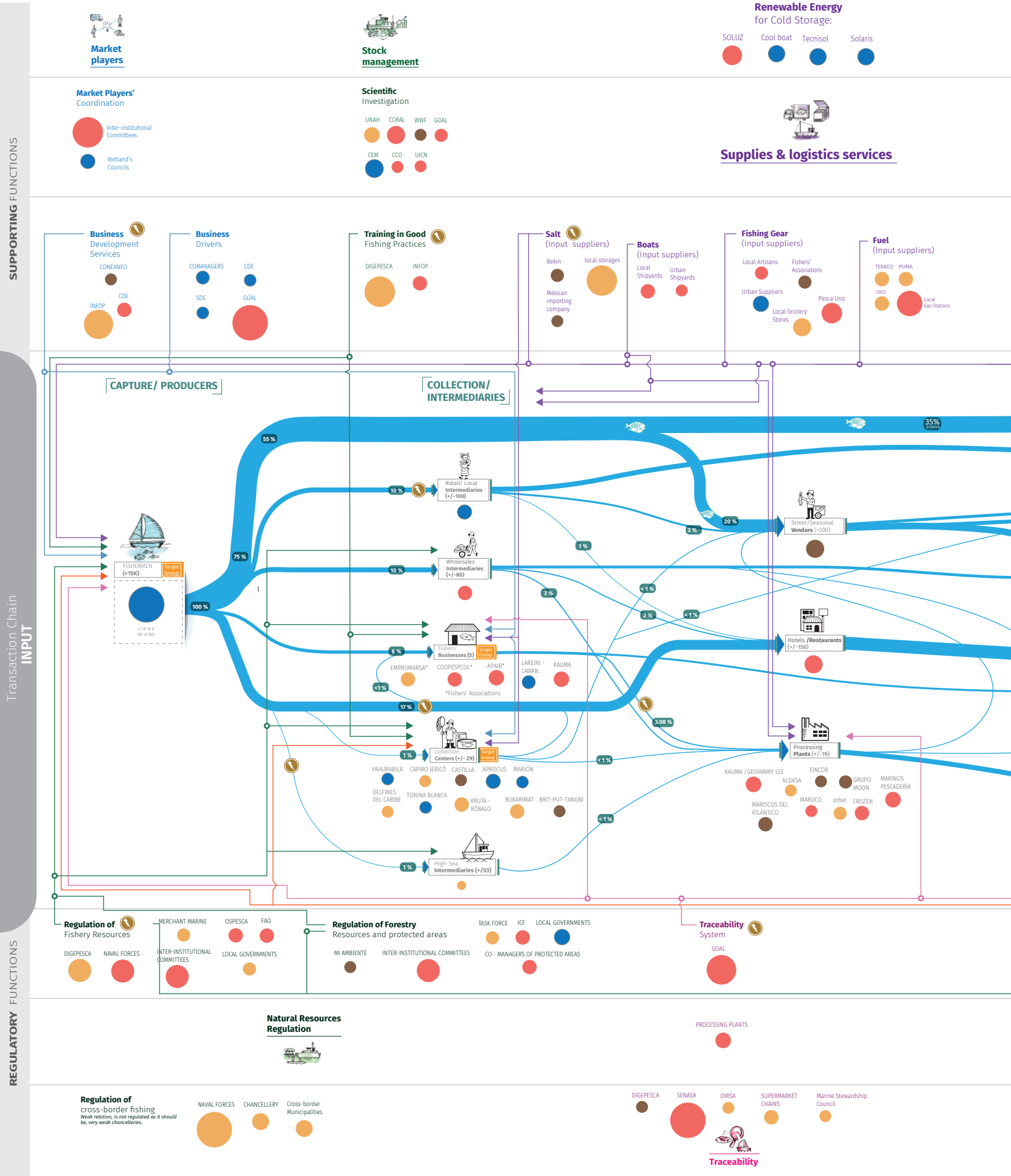
The 'R4S' Stakeholder Engagement Map is based in the Current System Map. It represents all the different type of players that exist in the small-scale fisheries system according to two key elements: their influence capacity over the system & Interest and incentives to improve the system based on the Systemic Theory of Change and System Change Map developed in Step 4.3. The stakeholder analysis uses a scale from 1 to 5 for capacity and also a 1 to 5 scale for interest and incentive, where 1 is the lowest score and 5 the highest score possible. As the Legend on the upper right hand corner illustrates, the Stakeholder Engagement Map reflects four (4) types of actors.

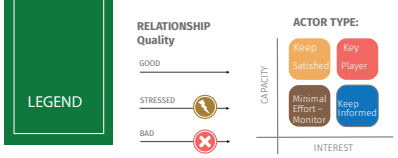
'Key Players' are represented as red circles, and they could be considered the most important type of actor in the system since they reflect the highest scores on two critical variables: (1) capacity to influence the system and (2) interest to improve the system. Thus, being the ideal system players (change agents) to work with.



The **'Minimal Effort – Monitor'** type of actors (brown circles) are those whose capacity and interest to change the system are the lowest, hence trying to effect systemic change with these type of actors would not be fruitful at this stage. However, these type of actors could change their status in the future and become potential change agents and thus must be monitored.

The **'Keep Informed'** type of actors (blue circles) are those who possess a high interest to improve the system but their capacity to do so is low. Thus, the capacity of these system players could be enhanced since their interest for systemic change is high (resistance for change would be low). They represent potential change agents at this stage and they must be kept informed.

Finally, the **'Keep Satisfied'** type of actors (orange circles) are those whose capacity to influence change in the system is high but whose interest to do so is low. As the Legend reflects, these type of players are a few steps from becoming 'Key Players' and thus should be motivated and persuaded to become key change agents. They must be kept satisfied for them (intentionally or unintentionally) not to use their influence to obstruct change to the system.



ABSENT INTERRELATIONSHIP

Business & financial services

INDIRECT INTERRELATIONSHIP

Marketing/ Investigation- Information

CDE

GOAL

Financial Services

CAYCTOL

TIGO MONEY

CO-OP. SAGRADA FAMILIA

BANCO DE LOS TRABAJADORES

CO-OP CEIBEÑA

FGR CONFIANZA

BANCO ATLÁNTIDA

BANRURAL

CAYCSOL

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DIRECT INTERRELATIONSHIP

Ice Suppliers (Input suppliers)

APAIB (* Fishers' Business)

EMPROMARSA

BUKARIMAT

KAUMA

Urban Markets

PROCESSING PLANTS

BRIT - PUT - TANGNI

COOPESPCOL

Equipment Repair Services

Local repair workshop

Fishermen

Yamaha Repair Workshop

Transportation Services

COSTA III

FRANK GOFF

LOS PLAYEROS (collective land-transport service)

Equipment Suppliers

Motors:

Kawas' motors

Pesca Uno (Fishing gear)

YAMAHA

SUZUKI

RETAIL/ PROCESSING

CONSUMPTION

6 %

3 %

13.5 %

4 %

6 %

17 %

Municipal Markets (9)

TOCOA

TRUJILLO

SAN PEDRO SULA

PUERTO CORTÉS

CHOLOMA

LA CEIBA

PROGRESO

TELA

TEGUCIGALPA

LOCAL Consumer

NATIONAL Consumer

20 %

100 %

CONSUMERS (<15K)

Local Consumers (+/-50K)

7,010 MT (70.10%)

National Consumers (+/- 1M)

2,380 MT (23.80%)

Export (+/- 2M)

610 MT (6.10%)

3.08 %

< 1 %

< 1 %

5 %

Supermarkets (3)

LA COLONIA

WALMART

LA ANTORCHA

< 1 %

7 %

OUTPUT

DIRECT INTERRELATIONSHIP

Fishers' Associations/ Cooperatives

APEB

ASSN. PESCADORES LIMÓN

COLLECTION CENTERS

ASSN. CAYOS COCHINOS

PAZCOBLA

APIMH

ASSN. PESCADORES STA ROSA AGUÁN

ASSN. NUEVA ARMENIA

ASSN. RÍO COCO

ASSN. IRIONA

OPESCOOR (COROZAL)

PAMUPEL

PESCADORES DE TELA

ASSN. PESCADORES PLAN GRANDE

TRES PUEBLOS UNIDOS

INDIRECT INTERRELATIONSHIP

Indigenous People's Rights Protection

MISKITO INDIGENOUS FEDERATION (MASTA)

TERRITORIAL COUNCILS OF GRACIAS A DIOS

PROSECUTOR'S OFFICE OF THE ETHNIC GROUPS

DINAFROH

ILO

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Early Warning & Response Systems (EWRS)

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Hygiene / Food Safety Security

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