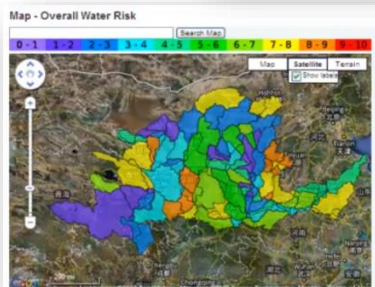# Harnessing water risk tools:
Expanding our understanding of water waste

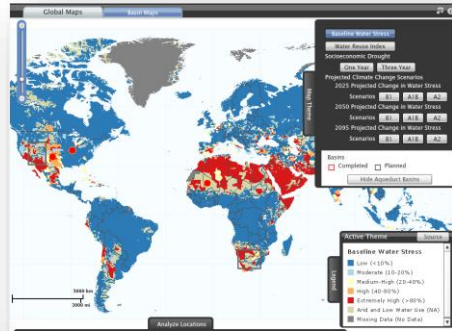Paul Reig, WRI | World Water Week | September 2017

AQUEDUCT

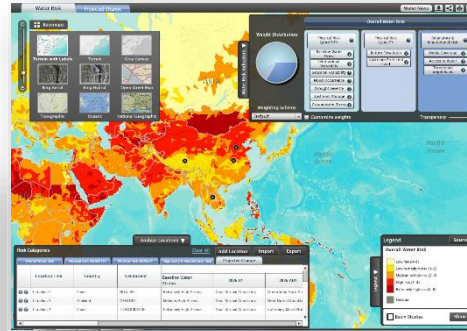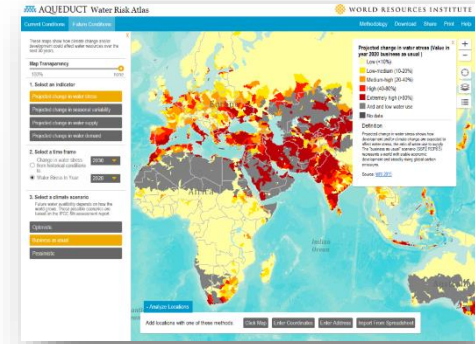**2011** - Water Risk Atlas, Prototype 1

2012 – Water Risk Atlas, Prototype 2
and Data from Coca-Cola

2013 - Water Risk Atlas 1.0

2014 - Water Risk Atlas 2.0

2015 - New Water Risk Projections

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PRIVATE SECTOR UPTAKE

AB InBev	Diageo	Molson Coors	SASB
Abbott	Dow	Mondelez	Shell
ACTIAM	DuPont	MSCI	Societe Generale
Antea Group	ECOLAB	NBIM	The Economist
Anthesis	Eileen Fisher	Nestle	The South Pole Group
Apple	Facebook	New Balance	The Sustainability Consortium
AstraZeneca	Gap	Nike	U.S. DOD
Bayer	GlaxoSmithKline	Olam	U.S. AID
Bloomberg	GM	P&G	UN FAO
BP	Google	Pacific Disaster Center	UN ICEF
Calvert Investments	Heineken	Pacific Institute	Unilever
Cargill	IEA	Patagonia	Valuing Nature
CDP Water	IFC	PepsiCo	VF Corp
Ceres	IKEA	Pfizer	WalMart
Chevron	JP Morgan	PGGM	Walt Disney
Citi	Kimberly Clark	PNB Paribas	WBCSD
Coca Cola	Levi Strauss	PwC	World Bank
Colgate	LGIM	Red Cross	WSP
Conagra	Mars	Repsol	
Deloitte	McKinsey & Co	RobecoSAM	

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NEW DATA: GROUNDWATER

COMBINED SURFACE AND GROUNDWATER STRESS

GROUNDWATER STRESS

GROUNDWATER TABLE DECLINE

UN Photo/Albert González Farran

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COASTAL STORM SURGE

FLOOD RISK

Stacker / Flickr

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NEW DATA: WATER QUALITY

WASTEWATER TREAMENT

INDEX OF COSTAL EUTROPHICATION POTENTIAL

Source: IEA New Policies Scenarios, American Society of Civil Engineers Infrastructure Report Card.
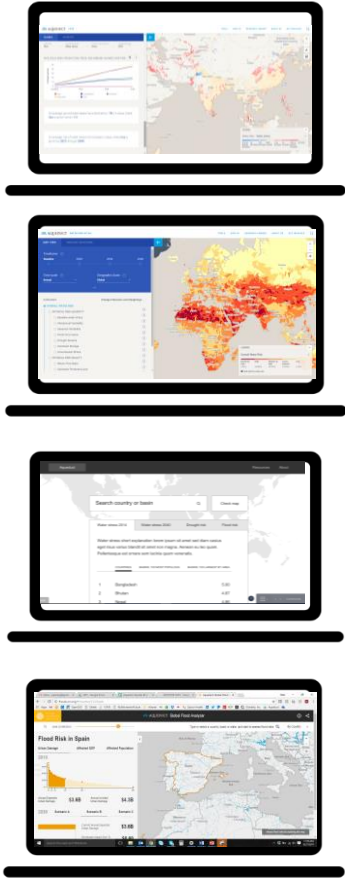PHOTO: Vittal Boggaram

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NEW DATA: FOOD

CROP AREA, YIELD, PRODUCTION, NET TRADE

FOOD DEMAND

WORLD PRICE

KILOCALORIES & RISK OF HUNGER

SYSTEM ARCHITECTURE & USER EXPERIENCE

AQUEDUCT TOOLS

DATA DOWNLOAD

API

THIRD PARTY TOOLS

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MAP VIEW   ANALYZE LOCATIONS

Timeframe ?

Baseline   2020   2030   2040

Time scale ?
Annual

Geographic Scale ?
Global

Indicators

Change Indicators and Weightings ☐

- ⦿ OVERALL WATER RISK   ⓘ
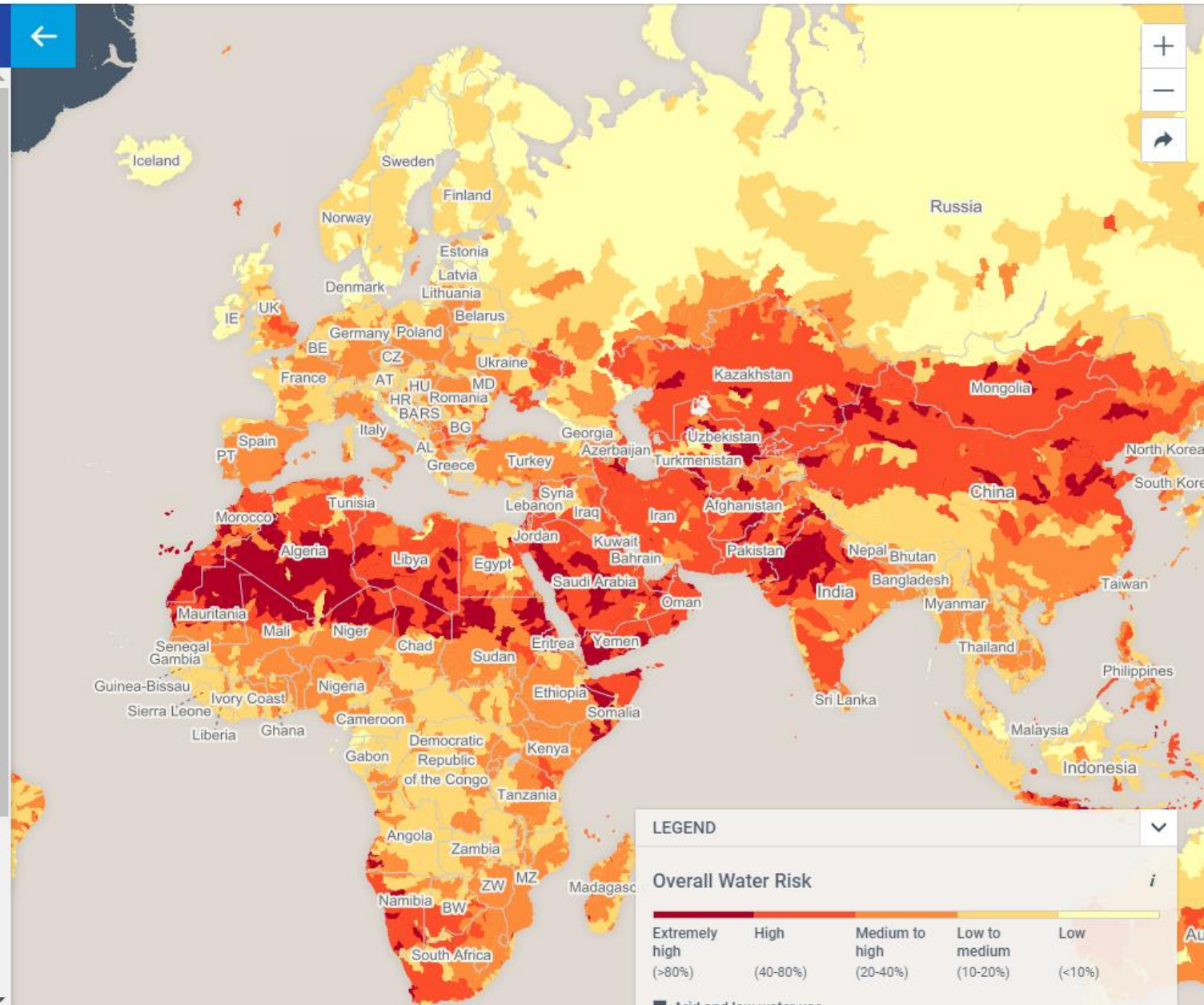 - ○ PHYSICAL RISK QUANTITY   ⓘ
    - ○ Baseline water stress   ⓘ
    - ○ Interannual Variability   ⓘ
    - ○ Seasonal Variability   ⓘ
    - ○ Flood Occurrence   ⓘ
    - ○ Drought Severity   ⓘ
    - ○ Upstream Storage   ⓘ
    - ○ Groundwater Stress   ⓘ
  - ○ PHYSICAL RISK QUALITY   ⓘ
    - ○ Return Flow Ratio   ⓘ
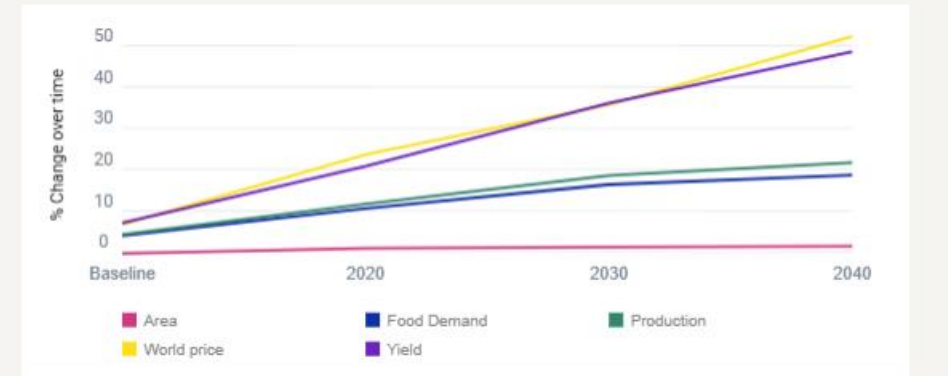   - ○ Upstream Protected Land   ⓘ

LEGEND ⌄

Overall Water Risk   i

Extremely high	High	Medium to high	Low to medium	Low
(>80%)	(40-80%)	(20-40%)	(10-20%)	(<10%)

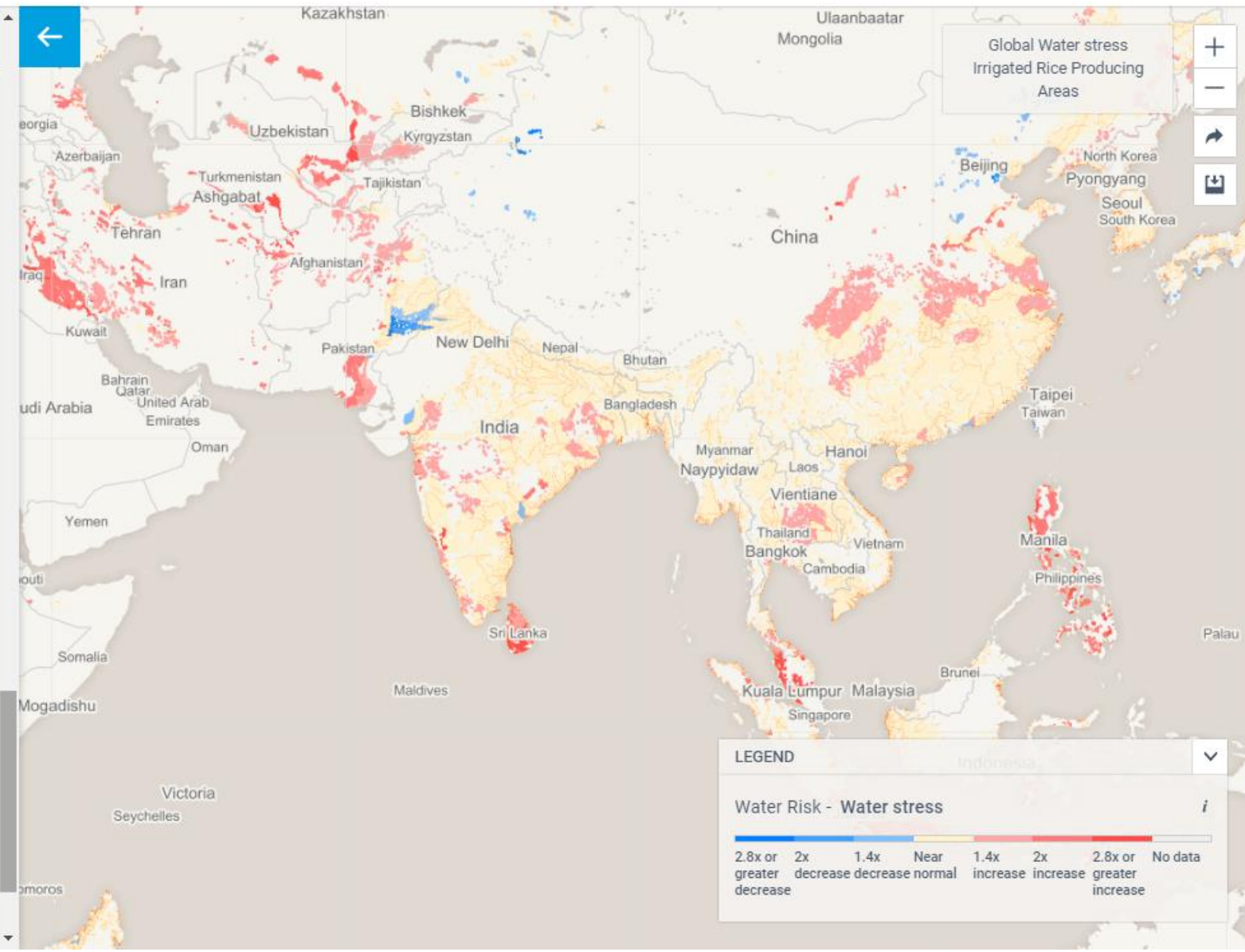■ Arid and low water use

AQUEDUCT **FOOD**

GLOBAL   COUNTRY

CROPS
Rice

WATER RISK
Water stress

FOOD SECURITY
None

TIMEFRAME
2040

RICE YIELD, AREA, PRODUCTION, PRICE, AND DEMAND CHANGE OVER TIME

- Area
- World price
- Food Demand
- Yield
- Production

On average, groundwater tables have declined by **-78**% in areas where **rice** is grown since 1990.

On average, risk of water stress will increase in areas where **rice** is grown by **202%** through **2040**.
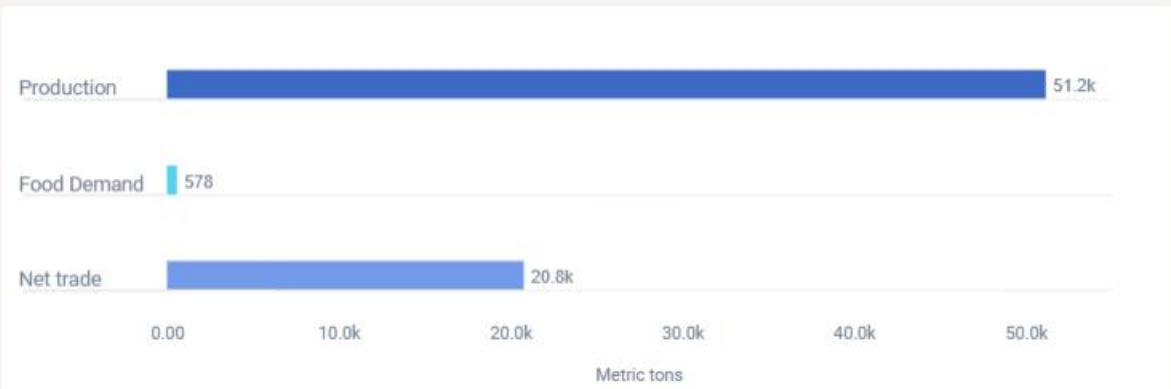
Global Water stress
Irrigated Rice Producing
Areas

LEGEND

Water Risk - **Water stress**

2.8x or greater decrease | 2x decrease | 1.4x decrease | Near normal | 1.4x increase | 2x increase | 2.8x or greater increase | No data

BRAZIL SUMMARY (SOYBEAN)

Water risk score	Yield	Area	Pop. at risk of hunger
0.91	4.83 tons/ha	22.2k ha	4.21 %

ARGENTINA SUMMARY (SOYBEAN)

Water risk score	Yield	Area	Pop. at risk of hunger
2.51	5.34 tons/ha	14.5k ha	4.83 %

VOLUME OF PRODUCTION, FOOD DEMAND, AND NET TRADE

Production	51.2k
Food Demand	578
Net trade	20.8k

Metric tons

VOLUME OF PRODUCTION, FOOD DEMAND, AND NET TRADE

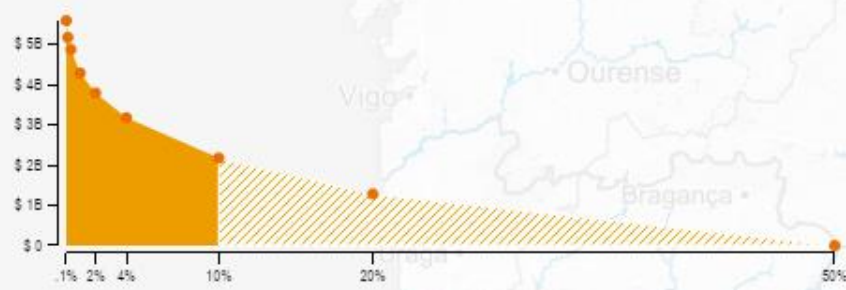|	
Production	36.8k
Food Demand	61.3m
Net trade	7.19k

Metric tons
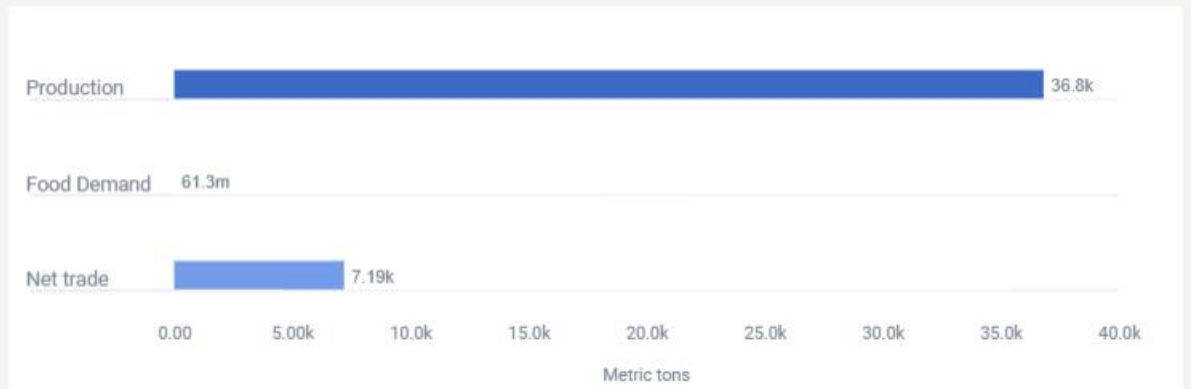
10 year protection

Type or select a country, basin or state, and start to assess flood risks Q

By Basin ⌄

Flood Risk in The Ebro Basin
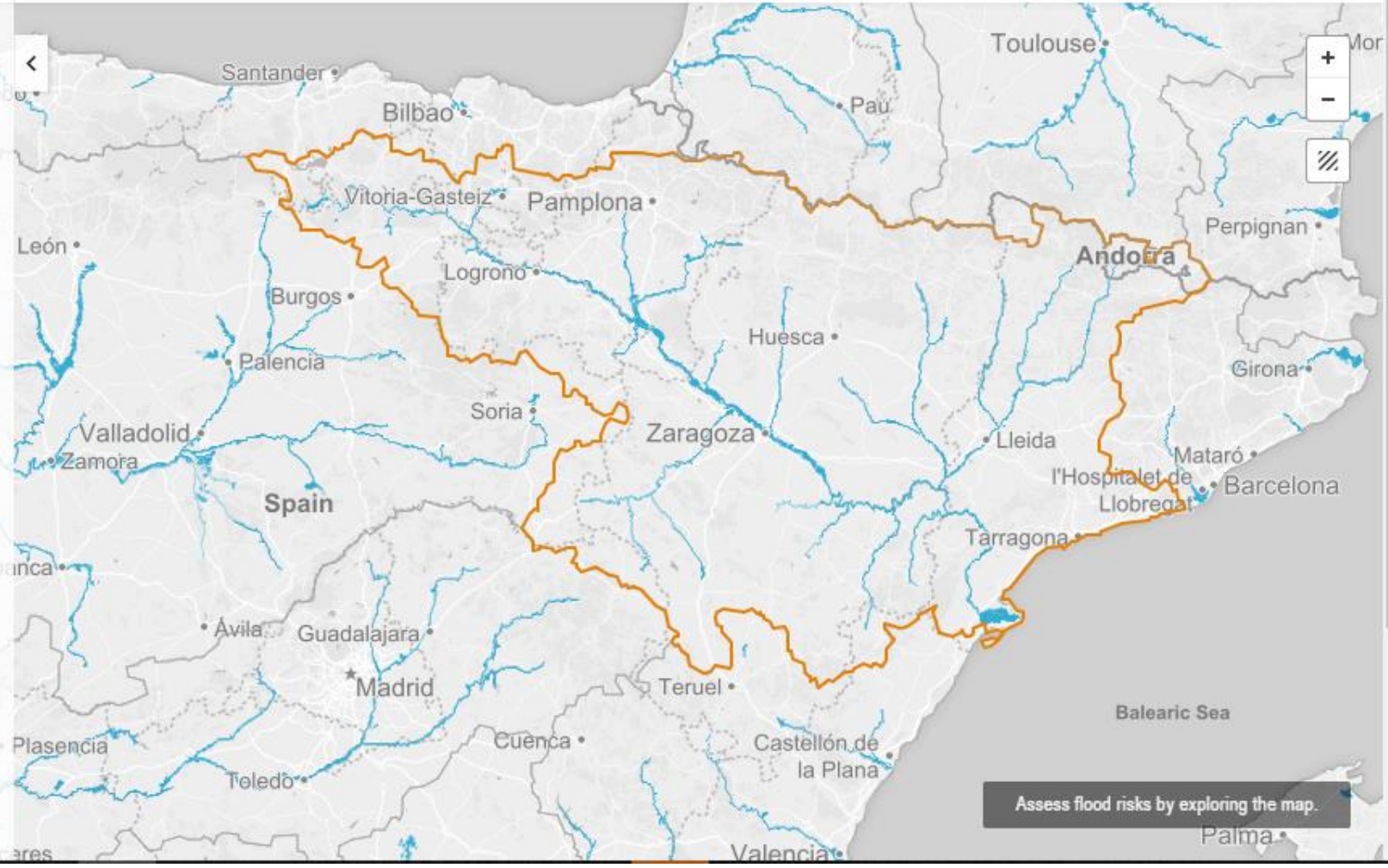
Urban Damage Affected GDP Affected Population

2010

$ 5B
$ 4B
$ 3B
$ 2B
$ 1B
$ 0.0

.1% 2% 4% 10% 20% 50%

| Annual Expected Urban Damage | $319.6M | Annual Avoided Urban Damage | $365.7M |

2030

Scenario A **Scenario B** Scenario C

| Current Annual Expected Urban Damage | $319.6M |

Increased Impact Due To $54.7M

Assess flood risks by exploring the map.

Search country or basin 🔍

Check map

| Water stress 2014 | Water stress 2040 | Drought risk | Flood risk |

Water stress short explanation lorem ipsum sit amet sed diam casius eget risus varius blandit sit amet non magna. Aenean eu leo quam. Pellentesque est ornare sem lacinia quam venenatis.

COUNTRIES   BASINS: 100 MOST POPULOUS   BASINS: 100 LARGEST BY AREA

1	Bangladesh	5.00
2	Bhutan	4.87
3	Nepal	4.86

? | 0 / 0 Comments

Ongoing improvements to the Aqueduct Water Risk Atlas are made possible thanks to the support of:

For additional information, please contact:

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