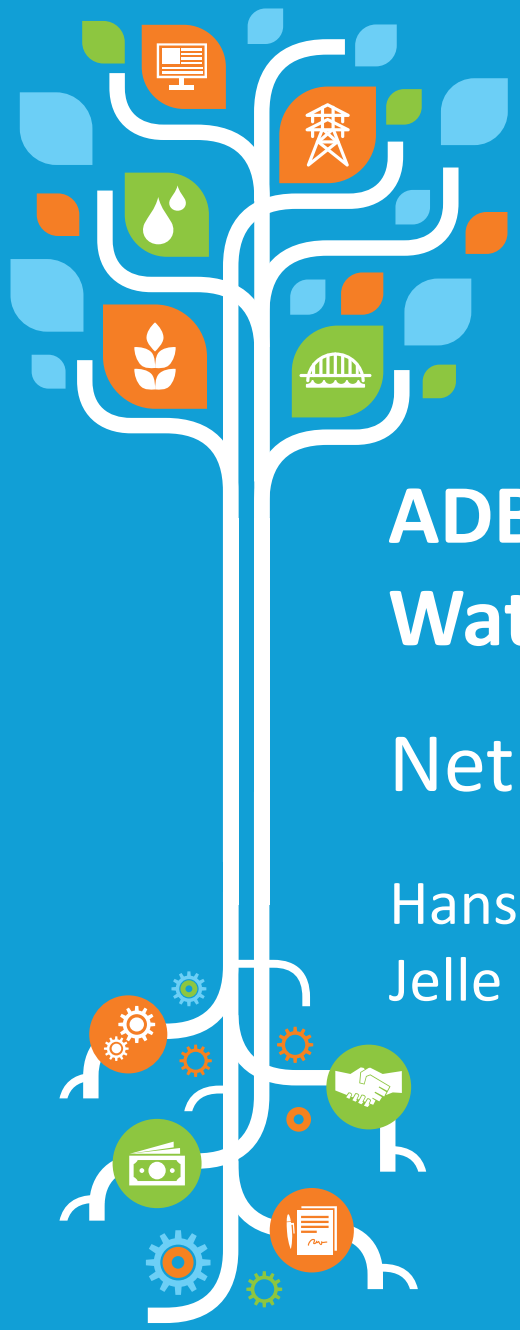


ADB

ADB Business Opportunities
Water and Agricultural and Natural Resources

Netherlands, 19 October 2021

Hans Woldring, Pr. Agricultural Specialist ADB: hswoldring@adb.org
Jelle Beekma, Sr. Water Resources Specialist ADB: jbeekma@adb.org

BUSINESS OPPORTUNITIES

Overview

- Key development agenda
- ADB's strategic focus
- Sector portfolio
- Overview of business opportunities

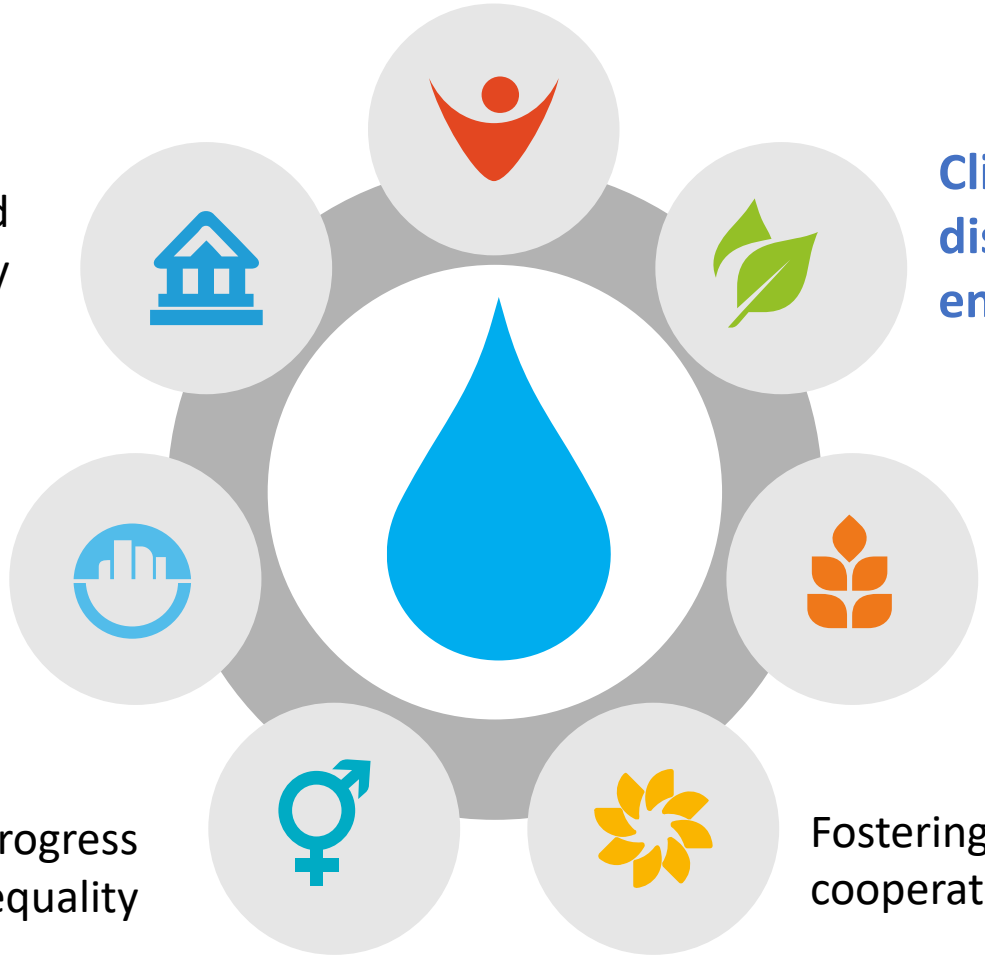
BUSINESS OPPORTUNITIES

Strategy 2030: Seven Operational Priorities

Poverty and reducing inequalities

Governance and institutional capacity

Climate change, climate and disaster resilience, and environmental sustainability



Making cities more livable

Rural development and food security

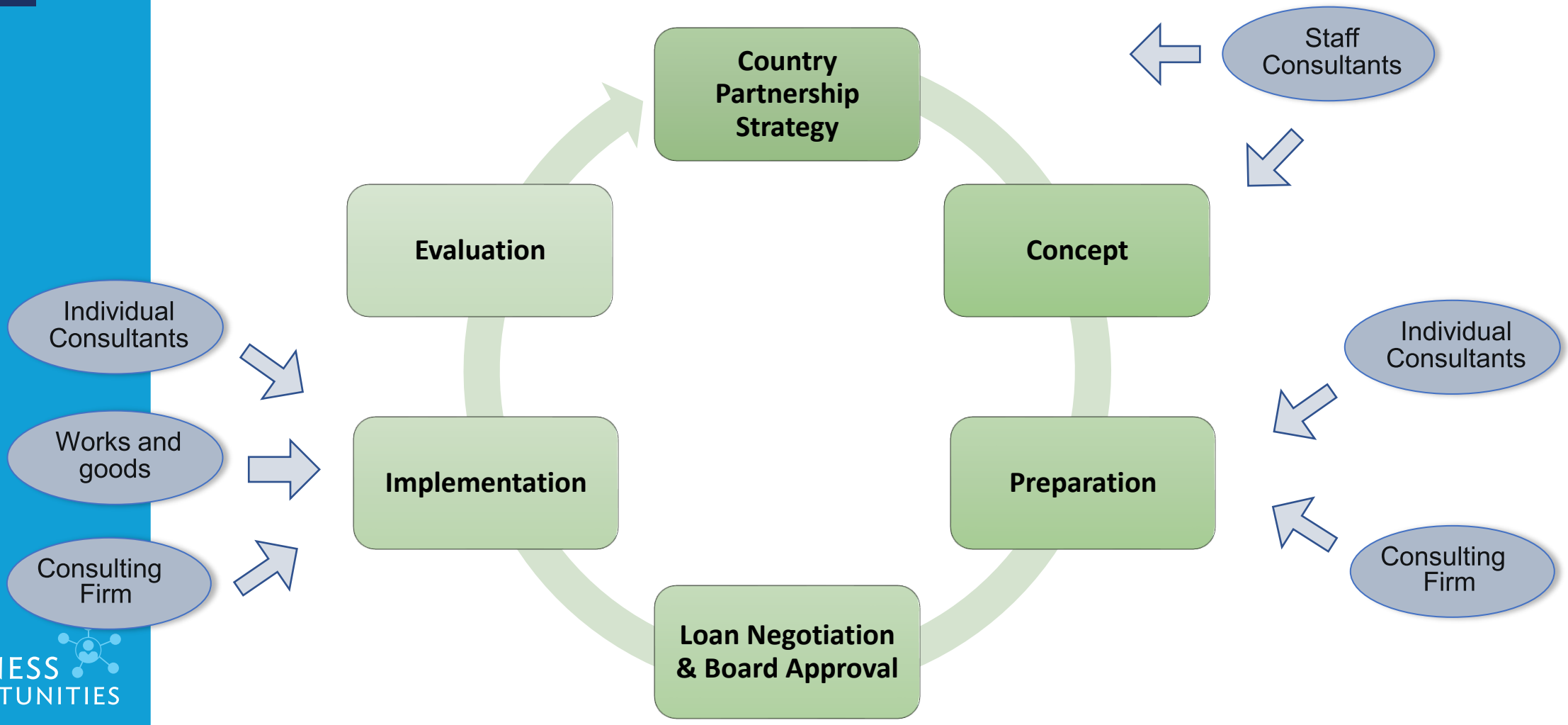
Accelerating progress in gender equality

Fostering regional cooperation and integration

Holistic and Integrated Approach

BUSINESS OPPORTUNITIES

ADB Project Cycle and Key Moments of Interest



BUSINESS OPPORTUNITIES

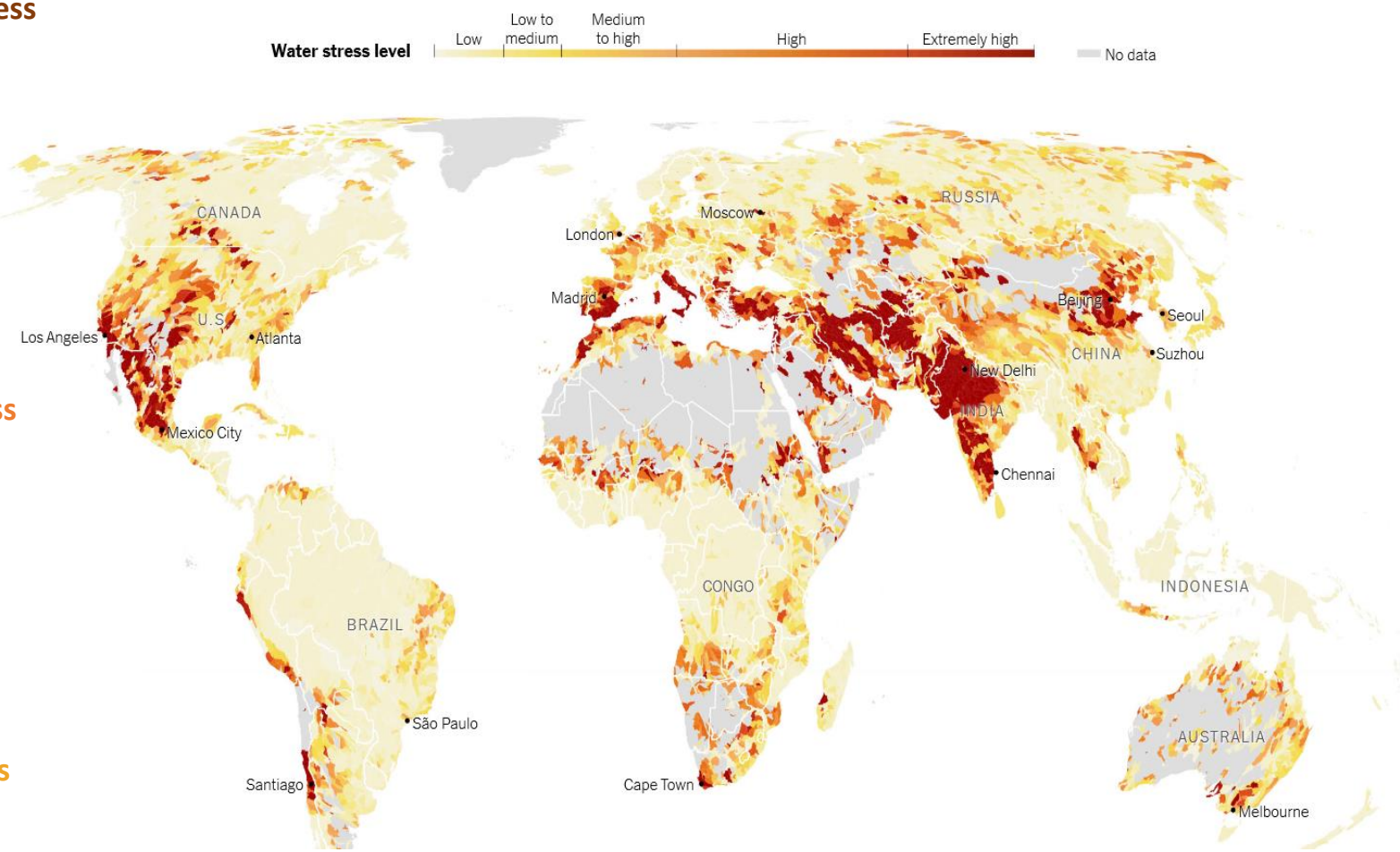
ADB Countries with High Baseline Water Stress

Extremely High Water Stress
- India
- Pakistan
- Turkmenistan

High Water Stress
- Uzbekistan
- Afghanistan
- Armenia
- Kyrgyzstan
- Nepal

Medium-High Water Stress
- Thailand
- Azerbaijan
- Australia
- Tajikistan
- South Korea
- Mongolia
- China
- Kazakhstan

Low-Medium Water Stress
- Philippines
- Georgia



World Resources Institute (WRI)

WRI baseline water stress measures the amount of freshwater available in surface and groundwater versus the amount withdrawn for municipal and industrial uses. Higher values indicate higher water risk.

BUSINESS OPPORTUNITIES

Asia's Looming Water Crisis

- Urbanization
- Increasing and competing demand
- Access to water supply and sanitation
- Deteriorating water quality
- Food security
- Increasing extreme weather events and climate change
- Governance and capacity

BUSINESS OPPORTUNITIES

ADB

BUSINESS OPPORTUNITIES

Rural Development

- **Poverty incidence** remains high in rural areas
- Widespread **unemployment**, limited access to **reliable energy** solutions, **clean water and sanitation**, quality **education and health services, finance, and digital connectivity** in rural areas, and accelerating the rural-urban migration
- Vulnerable to **adverse impacts of climate change and disaster risks**

Improving the access to basic services, building climate resilience, and generating an enabling environment for private sector investment in rural area to spur economic growth are key

Food Security Challenge

- **500 million (2/3 of the global total)** in Asia and the Pacific are hungry, and the prevalence is on the rise
- Micronutrient deficiency ("**hidden hunger**") and rising child **overweighs** and adult **obesity** co-exist
- Global food supply needs to **increase by 60%** in 2050 to feed more urban and affluent population
  - unprecedented levels of **business opportunities for farmers** in the region
  - shrinking and **degrading natural resources**, **climate change and disaster risks**, a changing **labor profile** and demographics, and **price and market volatilities**

BUSINESS OPPORTUNITIES

ADB's Strategy 2030: Rural Development and Food Security Operational Plan

- Focus its investments to transform the entire food system "*from farm to folk*" to achieve higher incomes for famers, provide safe and nutritious food to consumers and spur economic growth in rural areas

- **Focus areas**:
  - Rural development
  - Modern agricultural value chains
  - Food security

BUSINESS OPPORTUNITIES

COVID-19 PANDEMIC
IMPACTS AND OUTLOOK

Imbalance between global food supply and demand

- **Access to nutritious food** will worsen
- With reduced purchasing power, **food demand will shrink** significantly
- **Disruptions in supply chains**
- **Increase price volatility**
- Will mostly **affect low-income, food-import depended countries**

Situation in rural areas will worsen

- **Rural poor will become more vulnerable** to COVID-19
- **Economic activity will slow down** for 80% of self-employed in agriculture
- **Loss of income for day laborers** who are poorest of the poor
- **Exclusion of rural workers from employment-related social protection**

ADB

Economic losses equivalent to **6.4% to 9.7% of GDP;** developing Asia will contract by **0.7%**

THE WORLD BANK
IBRD • IDA

Global economy will shrink by **5.2%**

INTERNATIONAL MONETARY FUND

OECD

4.9% - 7.6% economic contraction

WFP
United Nations World Food Programme

Global acute food insecurity will double to **272 million** (including an additional 121 million due to COVID-19)

Economic, food, and health systems disruptions will **worsen malnutrition**

140 million people will be thrown into living in extreme poverty (less than US$1.90 per day)

BUSINESS OPPORTUNITIES

COVID-19 PANDEMIC
ACTIONS FOR THE NEW NORMAL

SHORT-TERM ACTIONS

Promote active government role

Bring markets to consumers

Ensure access to inputs

Collect, disseminate accurate and timely data, information

Ensure smooth domestic, international trade

Expand social protection systems

Strengthen links between health and agriculture

MEDIUM- & LONG-TERM ACTIONS

Ensure food stocks

Invest in wholesale markets, food safety and traceability, cold chain

Bridge digital divide

Harness high-level technologies

Transform smallholder farming

Create rural economic hubs

Address challenges faced by rural women

Reduce urban bias

Design innovative platforms, mechanisms

Increase resilience and self-sufficiency

BUSINESS OPPORTUNITIES

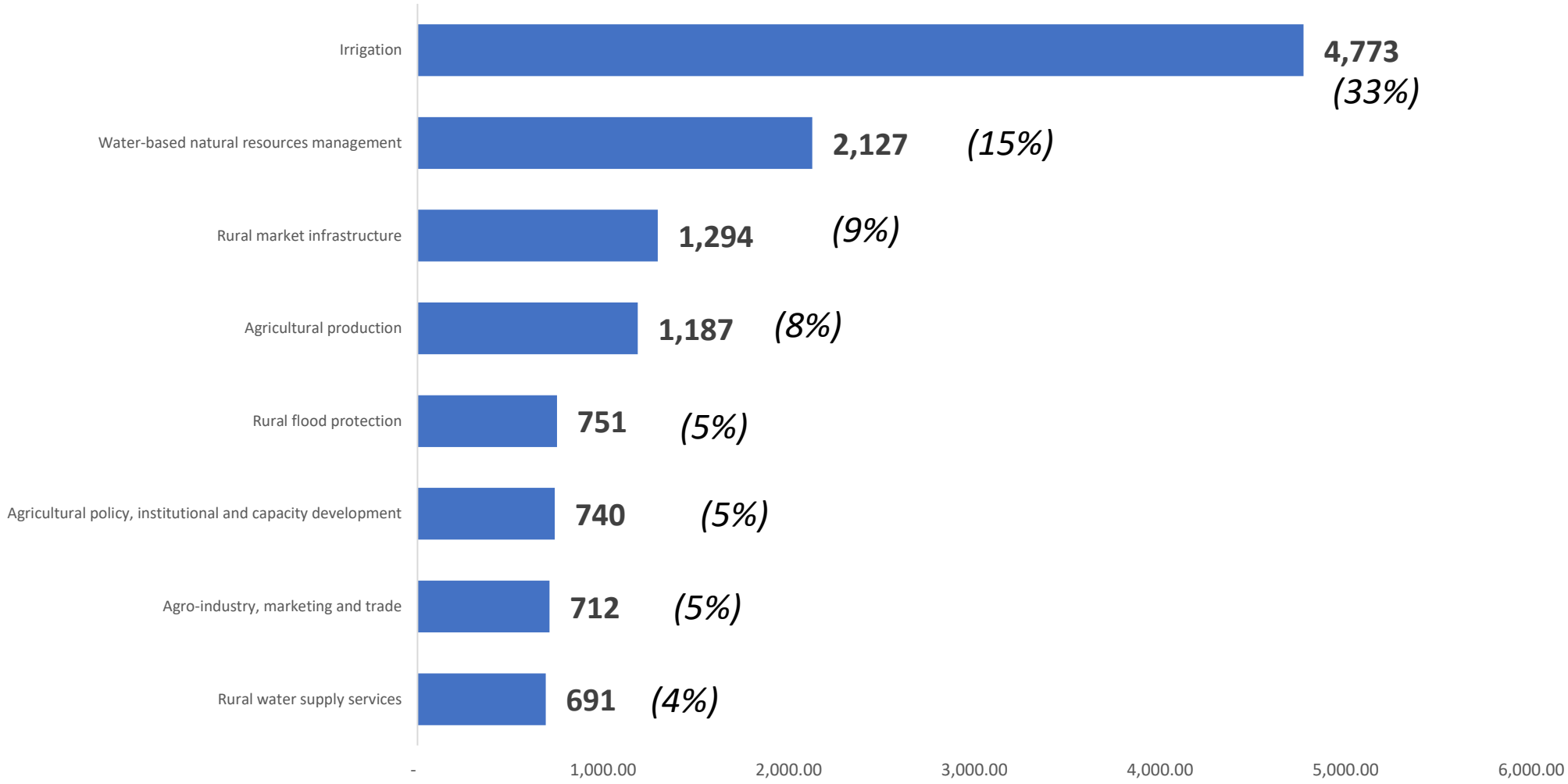
The New Normal and Associated Water Sector Investments

- More inclusive WASH: Strengthening linkage between WASH, health and wastewater infrastructure.
- Acceleration of the digital utility
- Building capacity and strengthening financial sustainability of water service providers
- Increased safe and resilient water service provision
- Building resilience to absorb shocks and stresses due to pandemics, disasters, and climate change.
- Prioritize resumption of critical capital works and infrastructure maintenance and inspections.
- Diversification of supply chains Irrigation and drainage modernization.
- A green and nature-positive recovery.

BUSINESS OPPORTUNITIES

1 Overview of AGRICULTURAL Pipeline

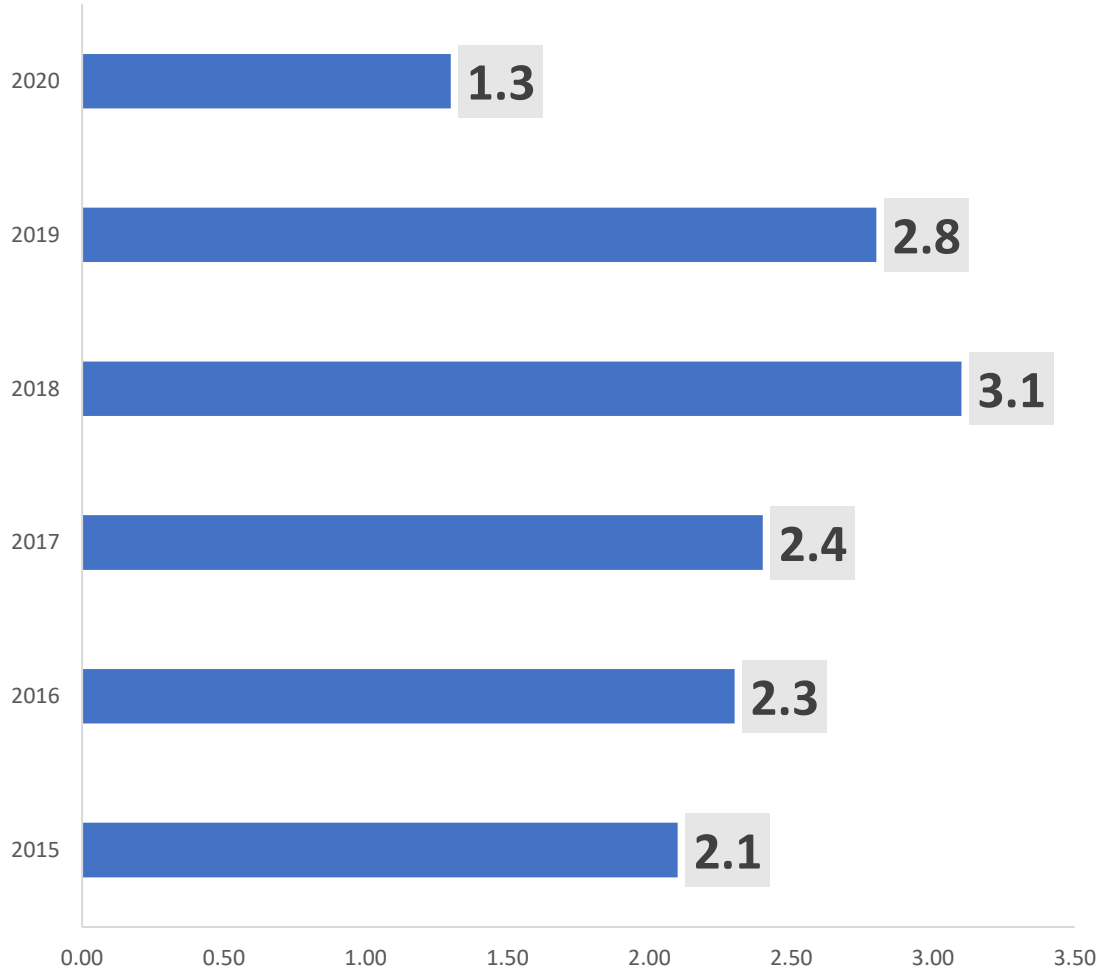
2009-2020 ADB Investment in ANR by Subsector ($ million, % share)



*Based on 2009-2016 are approved projects while 2017-2020 are committed projects.

BUSINESS OPPORTUNITIES

2017-2020 Food Security Investments ($ billion) from Committed Projects



Food security investments

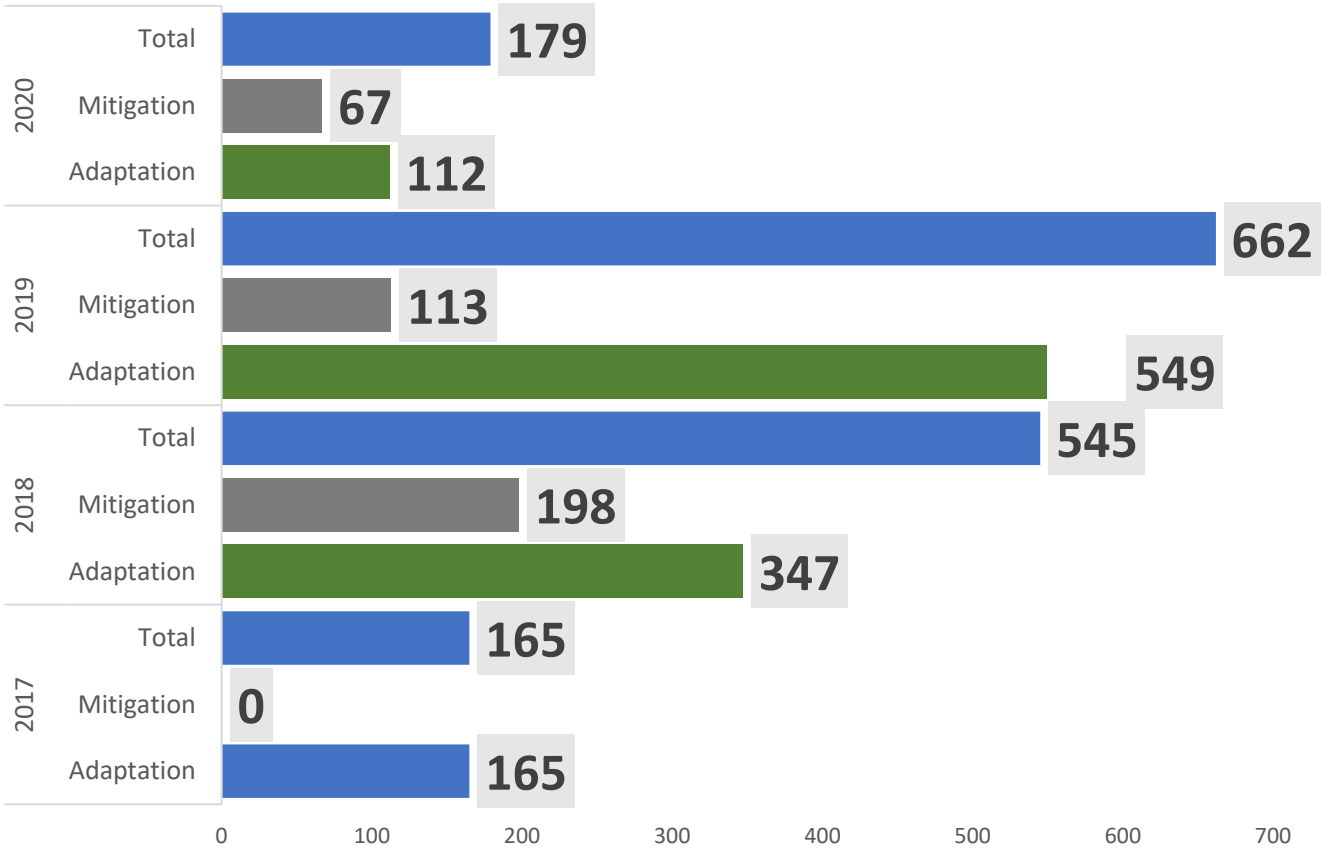
determined based on commitments:

- Agriculture, natural resources and rural development investments (including relevant subprojects of multisector investments)
- Investments that support food system development (i.e., transport, trade, agribusiness financing, water, energy, data/technology infrastructure, and vocational training of agricultural experts) and agribusiness development opportunities and related jobs
- Clean water, sanitation and primary health investments to collectively address malnutrition (i.e., utilization aspect of food security)

$2 billion yearly target

BUSINESS OPPORTUNITIES

2017-2020 Climate Finance Investments ($ million)



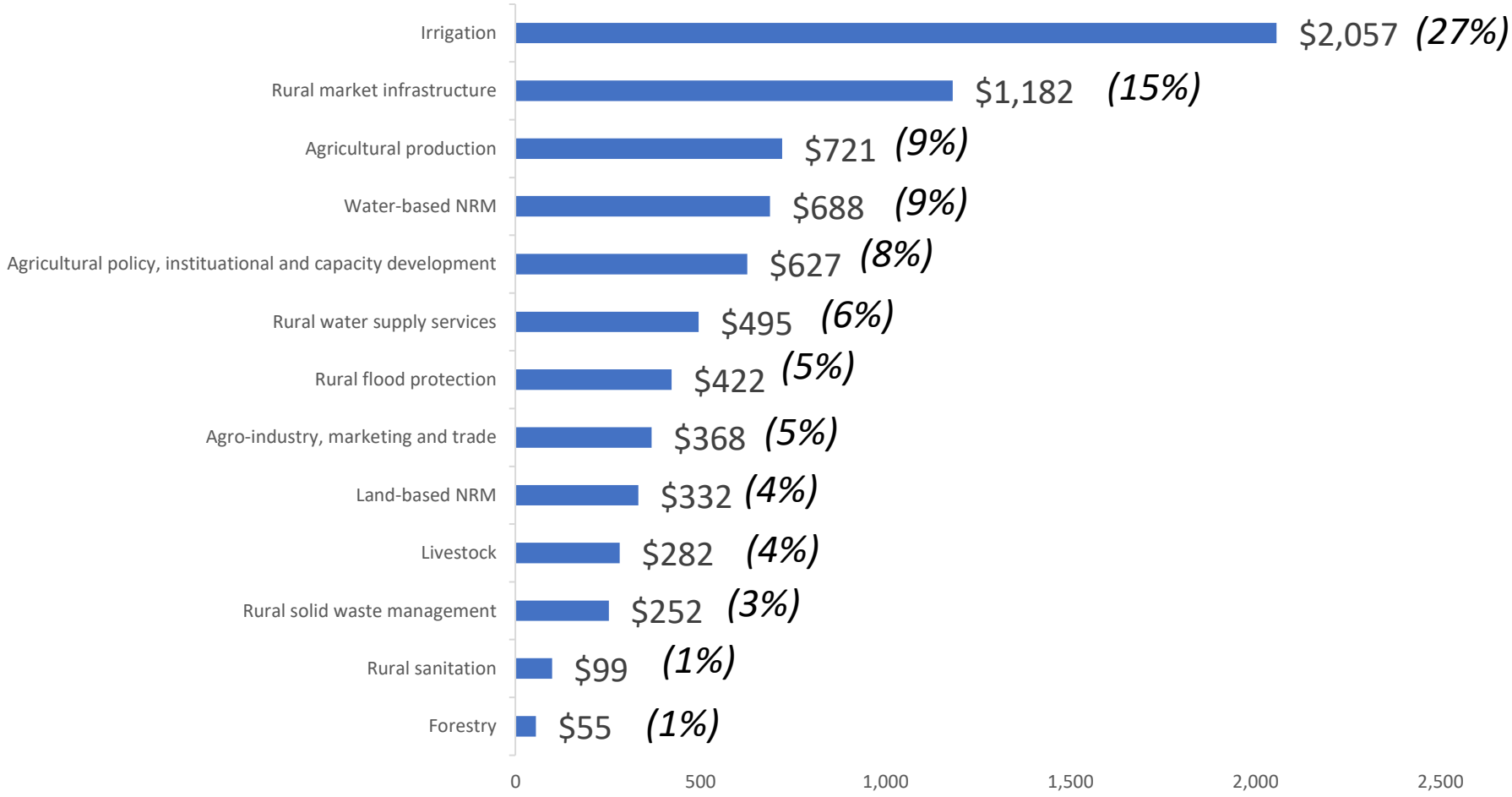
*Based on 2017-2020 committed projects.

Climate Adaptation—Investments to induce changes in agricultural management practices to lower adverse climate change impacts, e.g., improving livestock breeds; diversifying crops; growing climate-resilient crop varieties; improving irrigation efficiency, i.e., laser land leveling, fertigation, alternate wetting and drying; adjusted planting; and zero tillage, etc.

Climate Mitigation—investments that result in reduced GHG emissions, e.g., reducing energy use in production, processing, and distribution of food; improving existing carbon pools such as rangeland/pastureland management; generating energy from agricultural waste; rehabilitating degraded lands; afforestation and reforestation; safely disposing animal waste, etc.

BUSINESS OPPORTUNITIES

2017-2020 ADB Investment in ANR by Subsector ($ million, % share)



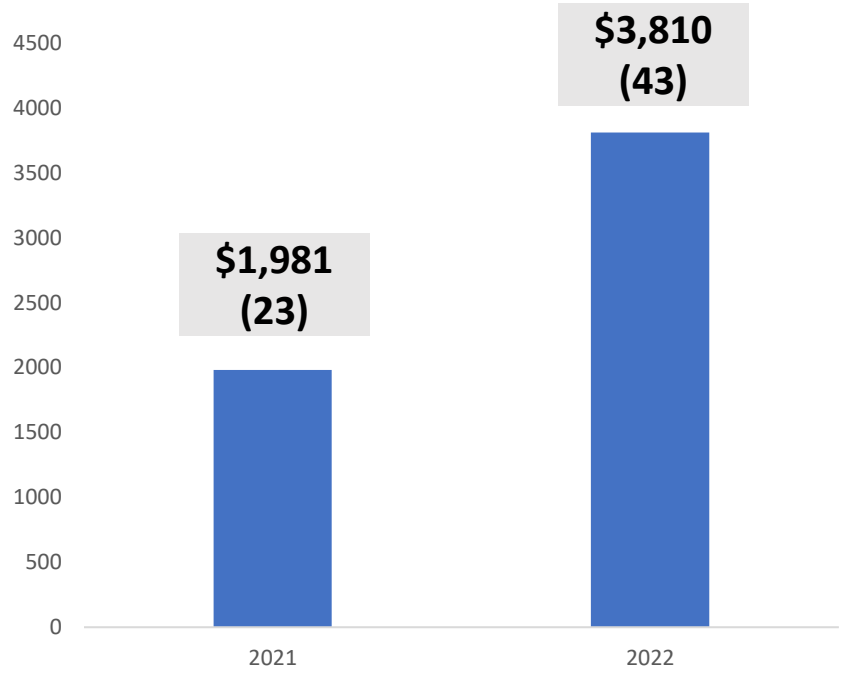
*Based on 2017-2020 committed projects.

BUSINESS OPPORTUNITIES

2021-2022 ADB Investment in ANR by Regions ($ million, No. of Projects)

	2021		2022	
Region	**Amount**	**No. of Proj.**	**Amount**	**No. of Proj.**
Central and West Asia	240.00	3	755.53	13
East Asia	814.50	6	750.00	4
South Asia	570.50	4	648.00	8
Southeast Asia	58.00	1	1,514.50	12
Private Sector	297.90	9	142.00	6
Total	**1980.90**	**23**	**3,810.03**	**43**

Source: ADB Management Information System as of August 2021



Investments typology

2021—irrigation, water-based/land-based natural resources management, climate change related ANR, COVID-19 related

2022 —irrigation, livestock health and value chain, water-based natural resources management, climate change related in ANR, rural infrastructure, COVID-19 related

BUSINESS OPPORTUNITIES

ANR Sector Pipeline

BUSINESS OPPORTUNITIES

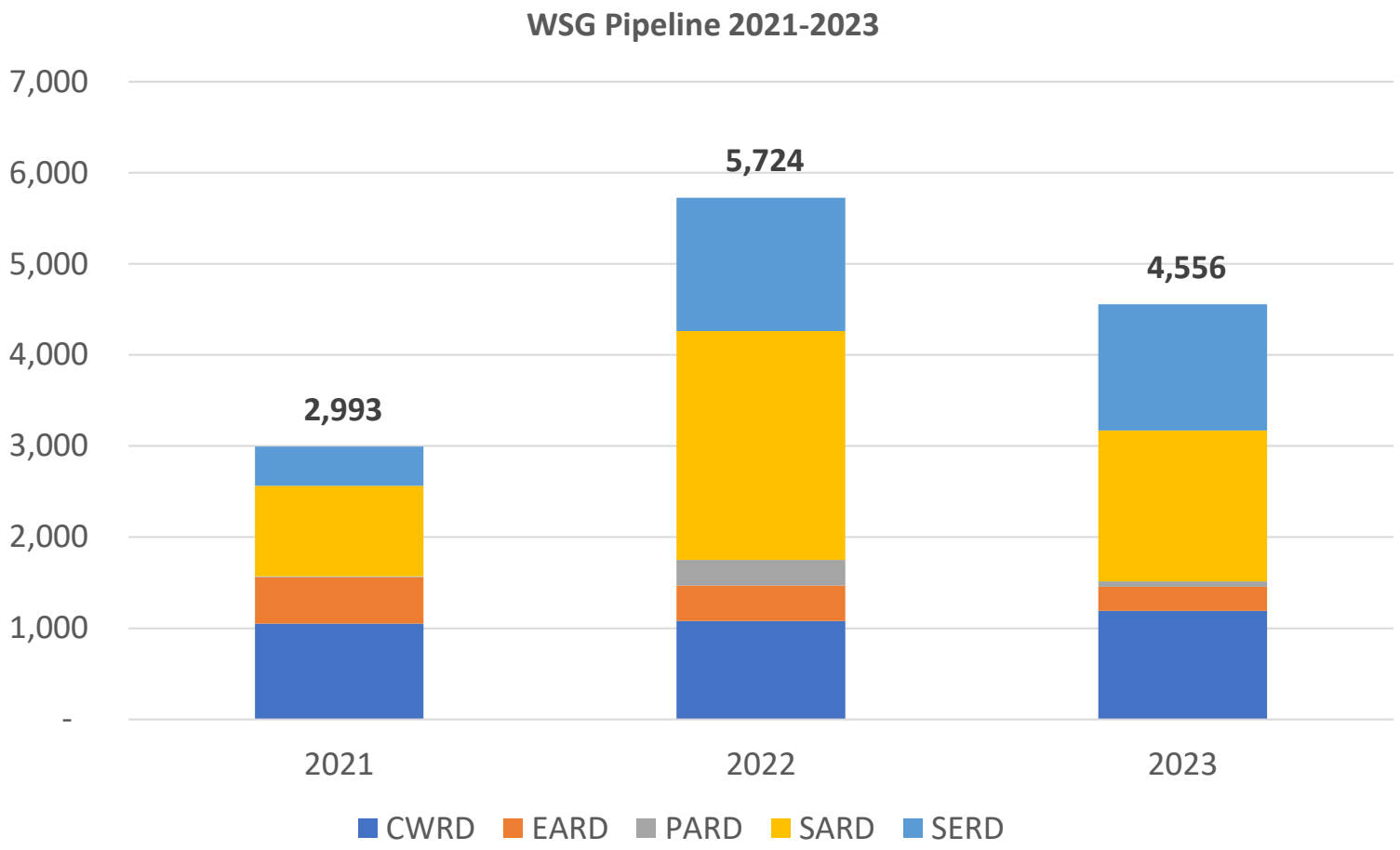
2 Water focused pipeline

ADB

BUSINESS OPPORTUNITIES

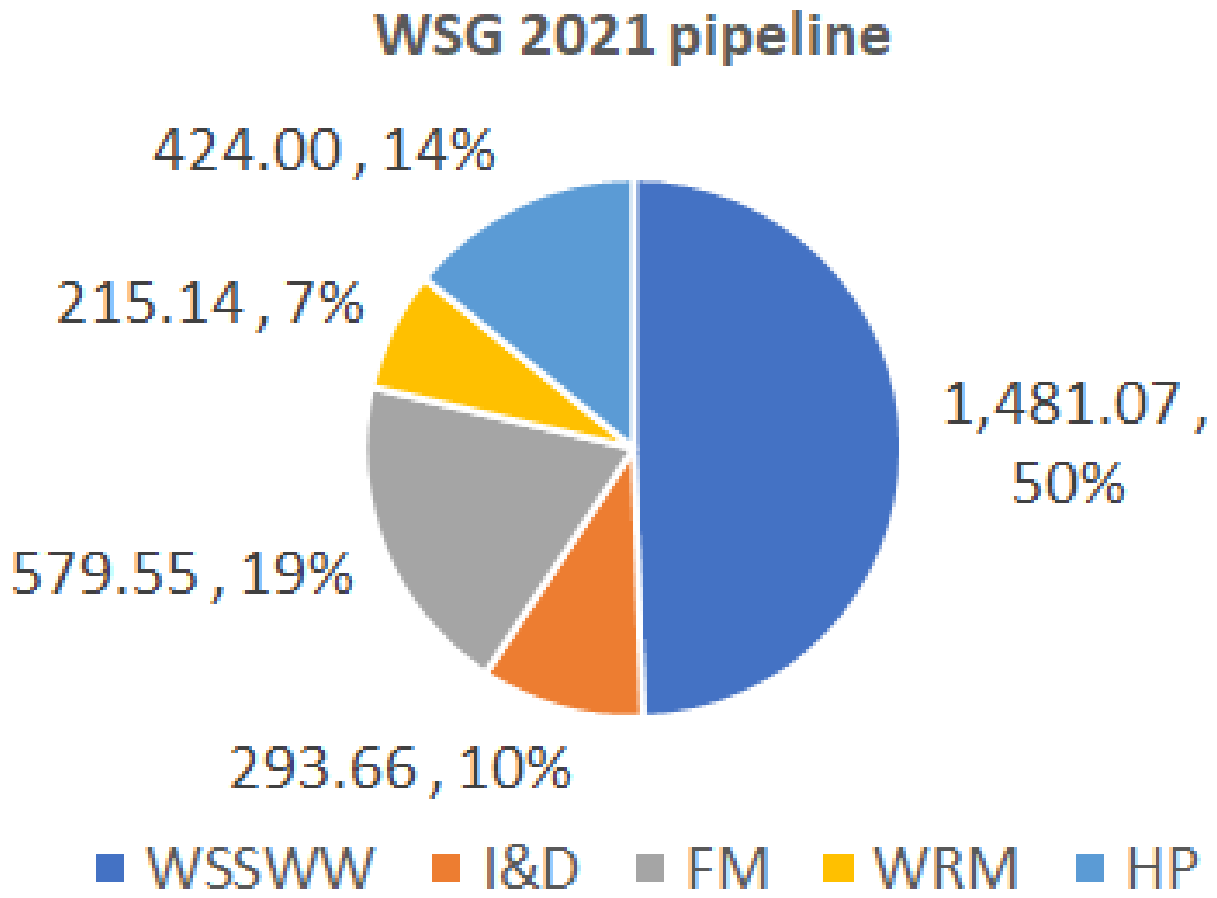
WSG Pipeline by Operational Department

(in $ Million)



WSG Lending History and Pipeline by Subsector

(in $ Million)



BUSINESS OPPORTUNITIES

Water Sector Pipeline Typology

Irrigation modernization (14)
Flood management and protection (6)
Rural vitalization (5)
Coastal management (3)
Integrated river management and water quality (3)
Irrigation and horticulture (2)
Weather forecasting and water resources management (2)
Drinking water (and sanitation) (60)

BUSINESS OPPORTUNITIES

3 Agricultural innovations with particular focus on Netherland's expertise

Overview of Sector Opportunities

 **Climate Smart Agriculture**: collaboration with private sector
(seed, climate investments, conservation finance etc.)

 **Agribusiness Market Value Chains:**
(food traceability, digital agribusiness services, food waste reduction, policy analysis, value chain finance etc.)

BUSINESS OPPORTUNITIES

High Factor Productivity Agriculture and Circular Bioeconomy

Two possibilities for expertise from the Netherlands:

1. **Indoor agriculture: sovereign and non-sovereign investments**

2. **Rural / Urban Circular bioeconomy to achieve carbon neutrality**

BUSINESS OPPORTUNITIES

4 Agricultural and water management innovations for saline agriculture

Locations Prone to Salinization

Four major mechanisms

1. **Accumulation of salts in rootzone in (semi) arid areas (3);**
2. **Waterlogging and secondary salinization into rootzone (3);**
3. **Saline groundwater irrigation (2);**
4. **Intrusion of salinity in coastal areas (4).**

BUSINESS OPPORTUNITIES

Irrigation Technique and Increasing Salinity Hazard

Drain flow resulting from different irrigation methods

Surface Irrigation: 100%

Drain flow 40%-50%
contains salt + residues
Salinity control: OK

Sprinkler Irrigation: 100%

Drain flow 10%-20%
contains salt + residues
Salinity control: Not always OK

Drip Irrigation: 100%

Drain flow 0%-10%
contains salt + residues
Salinity control: Seldom OK

Disposal of drain water: increasingly problematic because of salinity and possible agro-chemical pollutants

BUSINESS OPPORTUNITIES

Key Considerations Salinity Control

Netherlands has significant experience in how to address:

1. **Leaching and draining of saline water;**
2. **Drainage technology (pipes, inlets, envelope materials composite systems);**
3. **Improving soil water quality in sodic soils;**
4. **Salt tolerant crops, but a net leaching needs to be maintained.**

BUSINESS OPPORTUNITIES

Salt Resistance and Leaching Requirements of Salt Tolerant and Biosaline Crops (Croon, 2013)

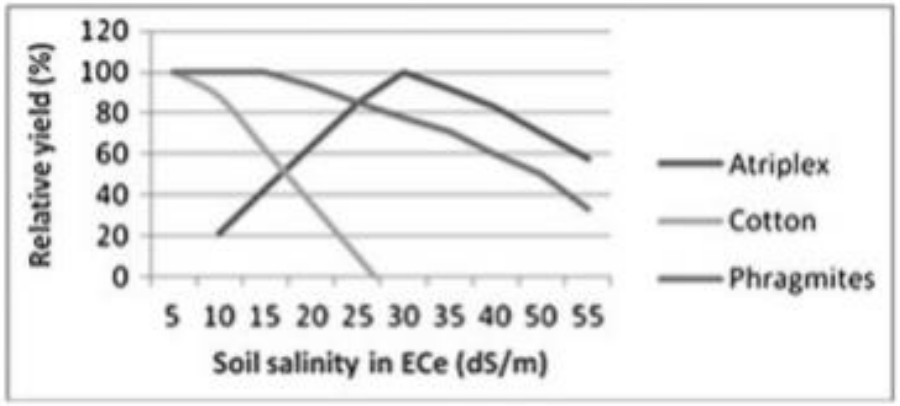


Figure 1. Influence of soil salinity on yield of halophyte, biosaline crop and field crop. Note: Data of *Atriplex*, a halopyhte, based on data published by ICBA (2008).

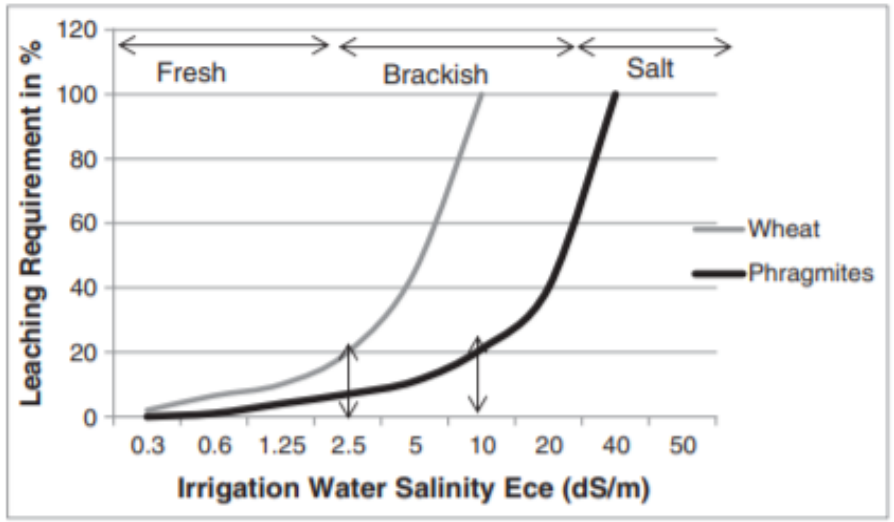
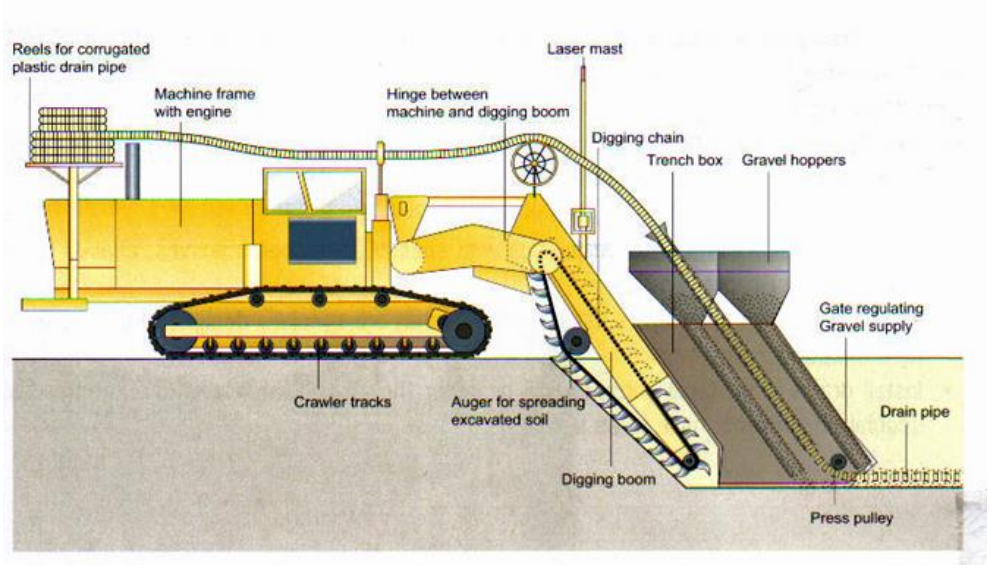
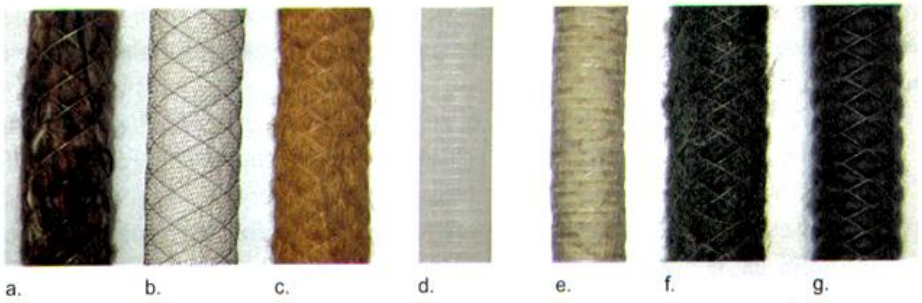


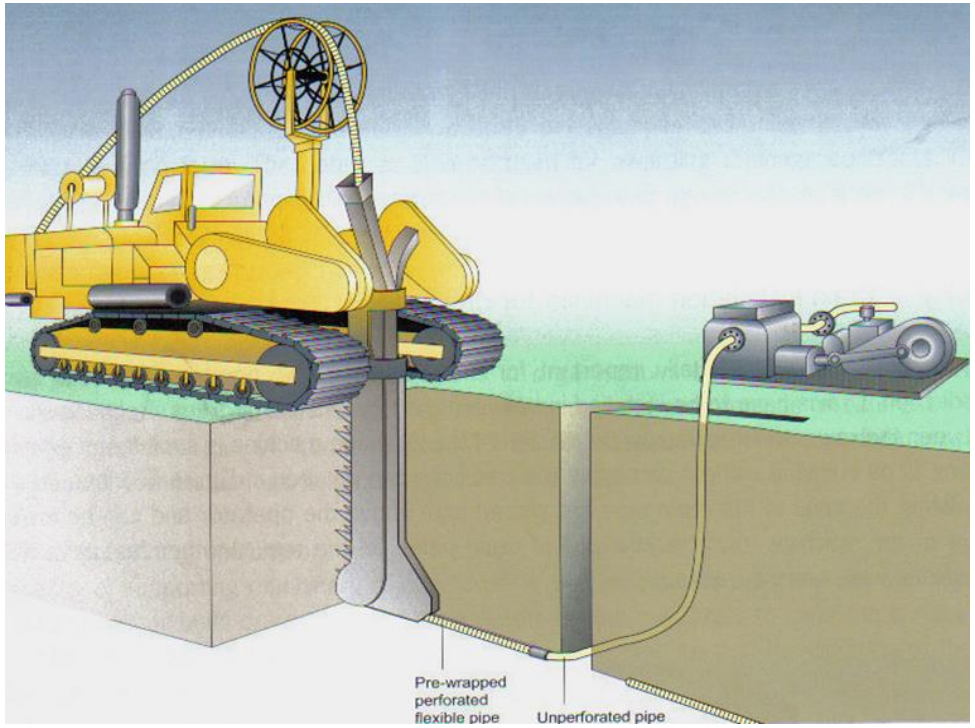
Figure 2. Leaching requirement as a function of different salinities for wheat and *Phragmites.*

BUSINESS OPPORTUNITIES

Examples of Specific Netherlands' Expertise







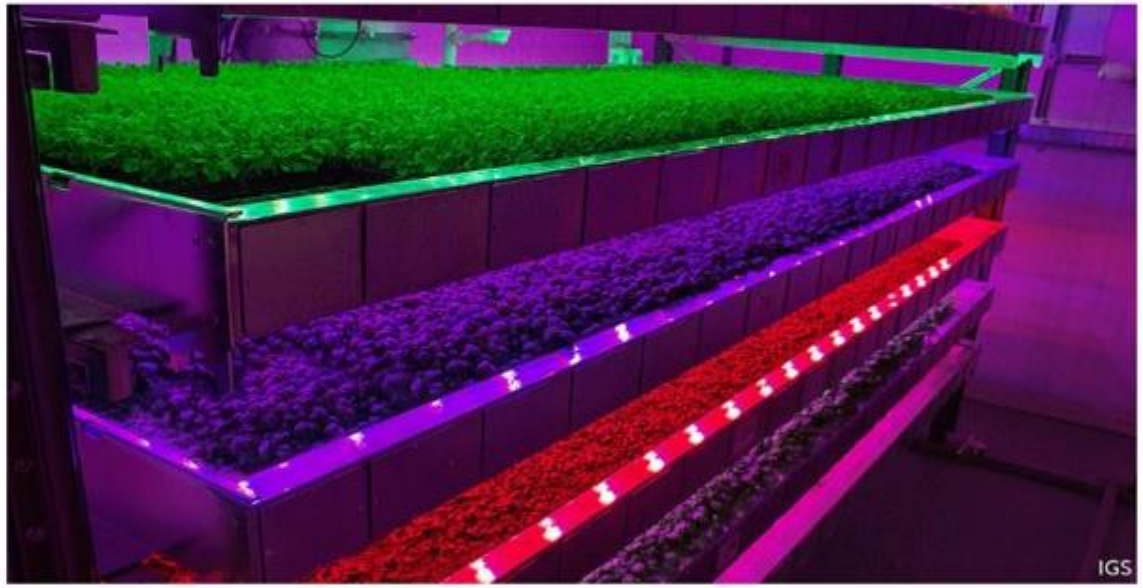
BUSINESS OPPORTUNITIES

Examples of Specific Netherlands' Expertise

Growing higher

New ways to make vertical farming stack up

Cultivating fresh produce in an artificial environment is getting cheaper



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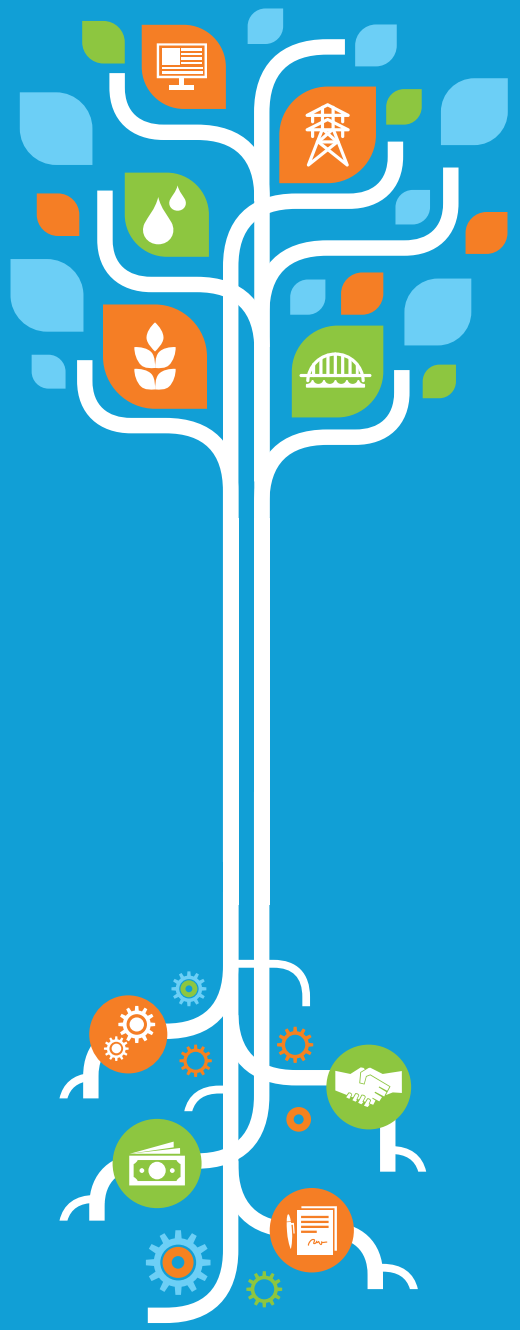

BUSINESS OPPORTUNITIES

THANK YOU for your attention!

Hans Woldring, Jelle Beekma

hswoldring@adb.org

jbeekma@adb.org

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