Knowledge grows

Circular Economy

Silvia Tonti, VP Circular Economy

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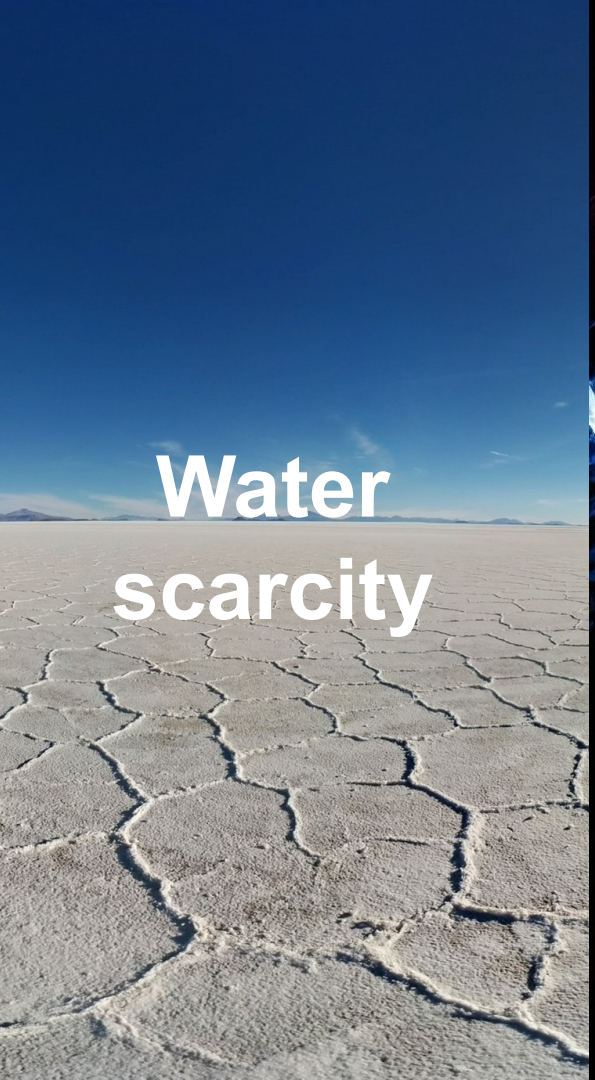
7
BILLION
People
TODAY

10
BILLION
People
2050


Water
scarcity


Global
warming


Food
scarcity

“The pace of change has never been this fast, yet it will never be this slow again”

(Justin Trudeau's speech at Davos)

- ***NFP and Waste regulations**, EU CE Package*
- ***Regenerative agriculture** Restoring soil health, ecosystems and biodiversity (EMF,OP2B)*
- ***Bio-economy:** production and conversion of renewable biological resources and waste streams into food, feed, bio-based products and bioenergy (WBCSD)*
- ***Cities and Circular Economy for food** (EMF)*

CE in agriculture not yet a matured market and delayed compared to other market segments

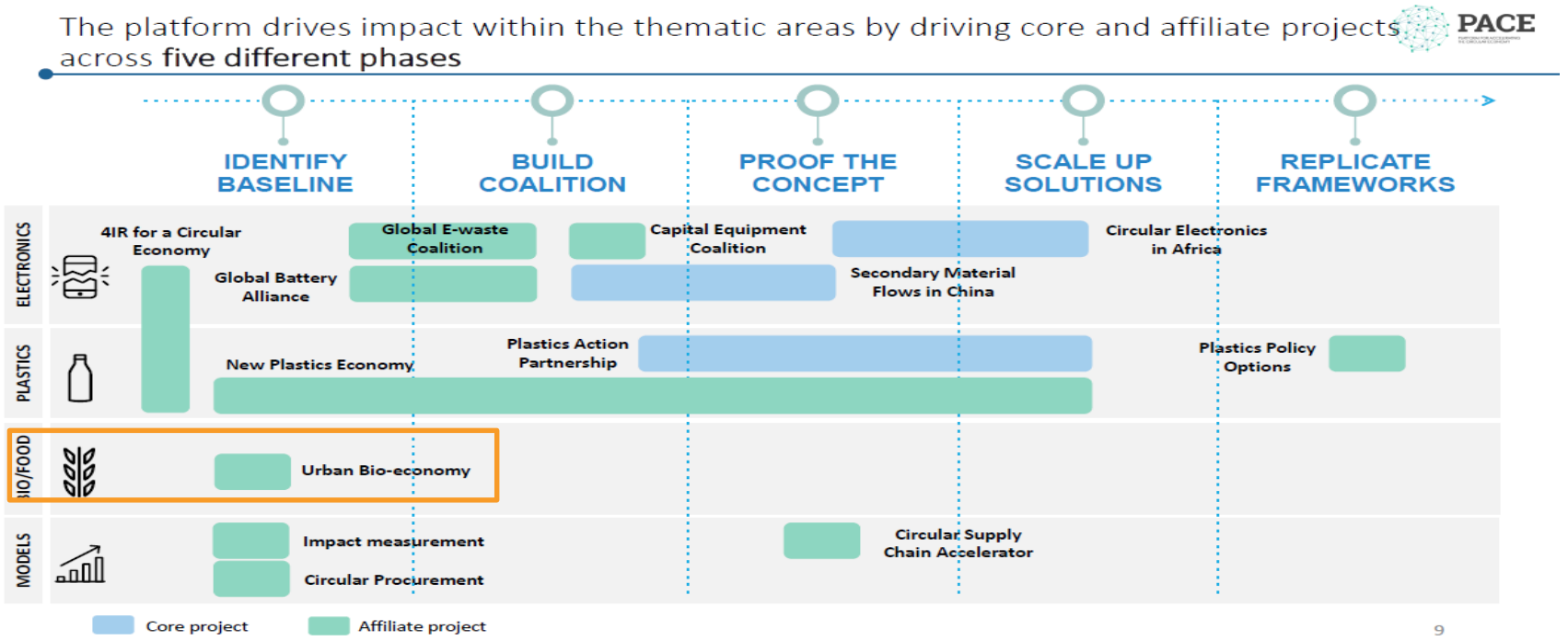
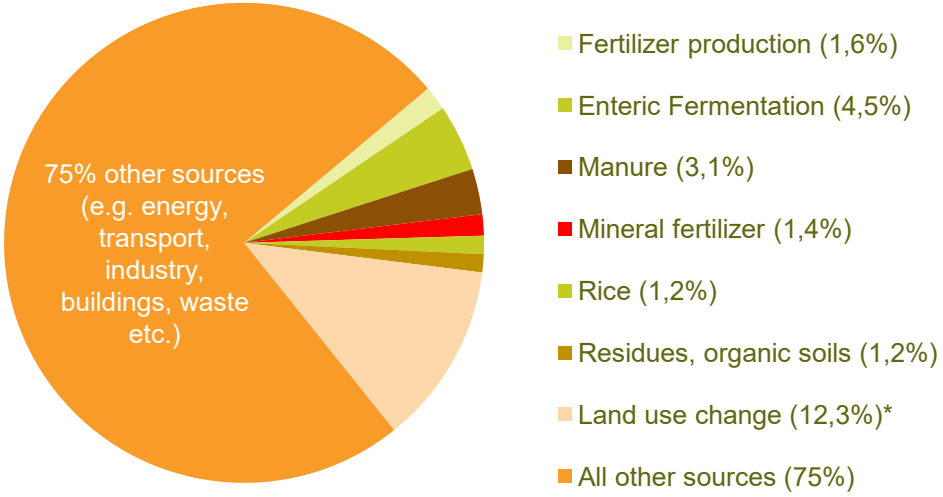


Illustration of the projects timeline (2018) of the Platform for Accelerating the Circular Economy (PACE), initiative from the WEF

“The Agricultural Sector Contributes to 25% of Global GHG Emissions”

Total: 49 Billion t CO_2-equivalents



* Emissions only, no sinks such as afforestation considered

Yara Response

- Yara halved own direct emissions and has the ultimate ambition to be climate neutral by 2015
- Circular Economy and Decarbonize projects
- Precision farming
- Digital farming
- Balanced crop nutrition
- Agronomic R&D

Mission

Responsibly feed the world and protect the planet

Vision

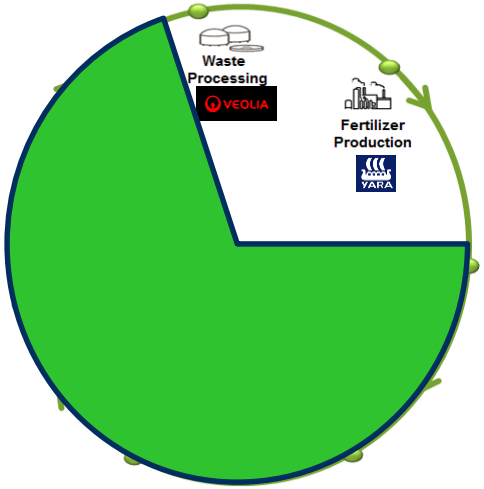
A collaborative society; a world without hunger; a planet respected.

Yara commits to profitable business solutions as response to Resource Scarcity and “Waste” Management Challenges

What	Value drivers	Strategic Anchoring
• Solutions to use recovered materials as sources for N, P and K • Alternative sustainable raw materials mix to production plants • Shape new business and value creation models in circular agriculture • Engage in strategic partnership	• **Respond** to consumer and regulatory **trends** • Create **new business models/revenue** streams • **Increased resource use efficiency** • Secure **alternative resource** supply	• One pillar of Yara corporate strategic • One of the four identified priorities for innovative growth • A new CE group with the mandate to create profitable business, being fully integrated into the core segment of sales and marketing

Contribution to Circular Economy via Strategic Partnership

Oslo/Paris, 21 January 2019: Today, global resource recovery company Veolia and leading crop nutrition company Yara signed an agreement to develop circular economy in the European food and agricultural chain by recycling nutrients and creating nutrient loops.



A more fundamental redesign of the food system is needed.
The Nutrient Upcycle Alliance
A call to farmers' association , food brand, retailer and other players, as well as municipalities and government bodies to join
Yara Nutrient Upcycling Alliance is a Core Project of the
Ellen MacArthur Foundation's Food initiative

Recovery and reuse of nitrogen from municipal waste water
Noway Yara – VEAS collaboration

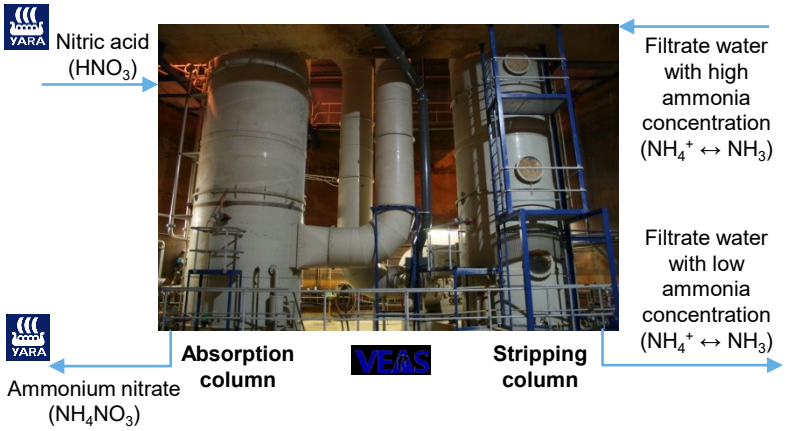
Yara acts as a key-enabler in this circular business model through supplying the nitric acid and receiving the ammonium nitrate.

As a result, **12-15% of the total N** load entering the VEAS plant **is recovered**: **350 – 500 Mt of N is converted to** around **4,000 Mt AN per year**.

As added value, VEAS benefits from a safe, efficient and hassle-free solution with Yara delivering the Nitric acid product, collecting the AN solution and managing all logistics.

Yara can either sell the recovered high-quality AN-solution to selected customers, or recycle it into its Porsgrunn fertilizer plant, closely located to the VEAS plant.

Ammonia gas + Nitric Acid → Ammonium nitrate



Source: Webpage business Europe
http://www.circulary.eu/project/yara-recovery/

Strategic Focus for Circular Economy in Yara
N, P recycle opportunities

Focus Areas		Waste streams		Final ambition
Recovered nutrients directly to agricultural market	**Extension of existing product portfolio / services** with solutions originating from processed organic material			CLOSE THE NUTRIENT LOOP
Secondary raw material to fertilizer production process	Use of extracted nutrients from recyclates **as raw material** back to existing production plants			SUSTAINABLE RAW MATERIAL MIX
Industrial symbiosis	Promote “Industrial loops” to re-use chemical, secondary raw material from recyclates			CIRCULARITY AS OFFER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Thank you for your interest!