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Water Resources Energy Transition as important factor in the at local and global scale

Water Footprint for sugarcane-based electricity generation

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Water Footprint before and after Wandel

Embrapa worked had the experience.

Wandel brought it back and expanded the evaluation to electricity

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Projects

Water footprint of sugarcane, ethanol and sugar production in irrigated areas in Brazil

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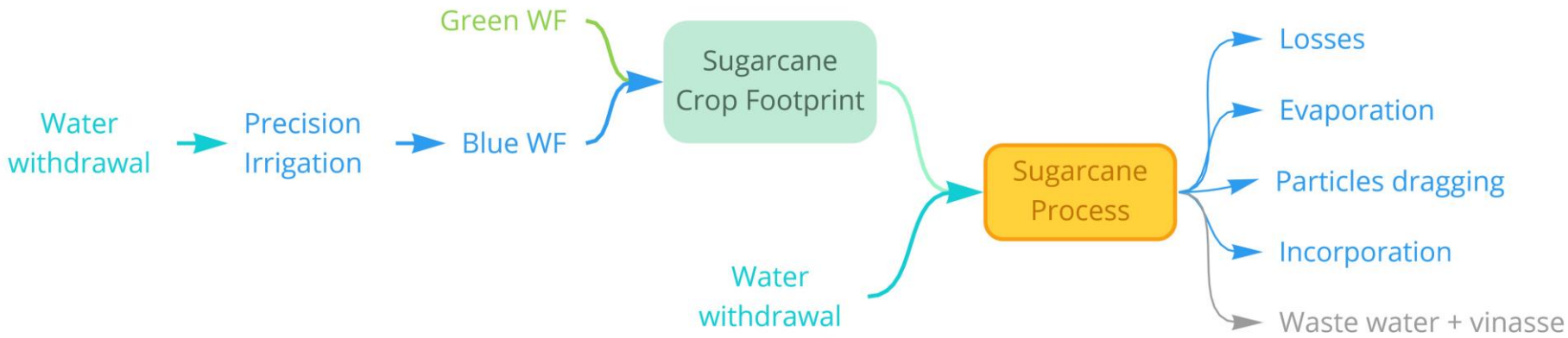
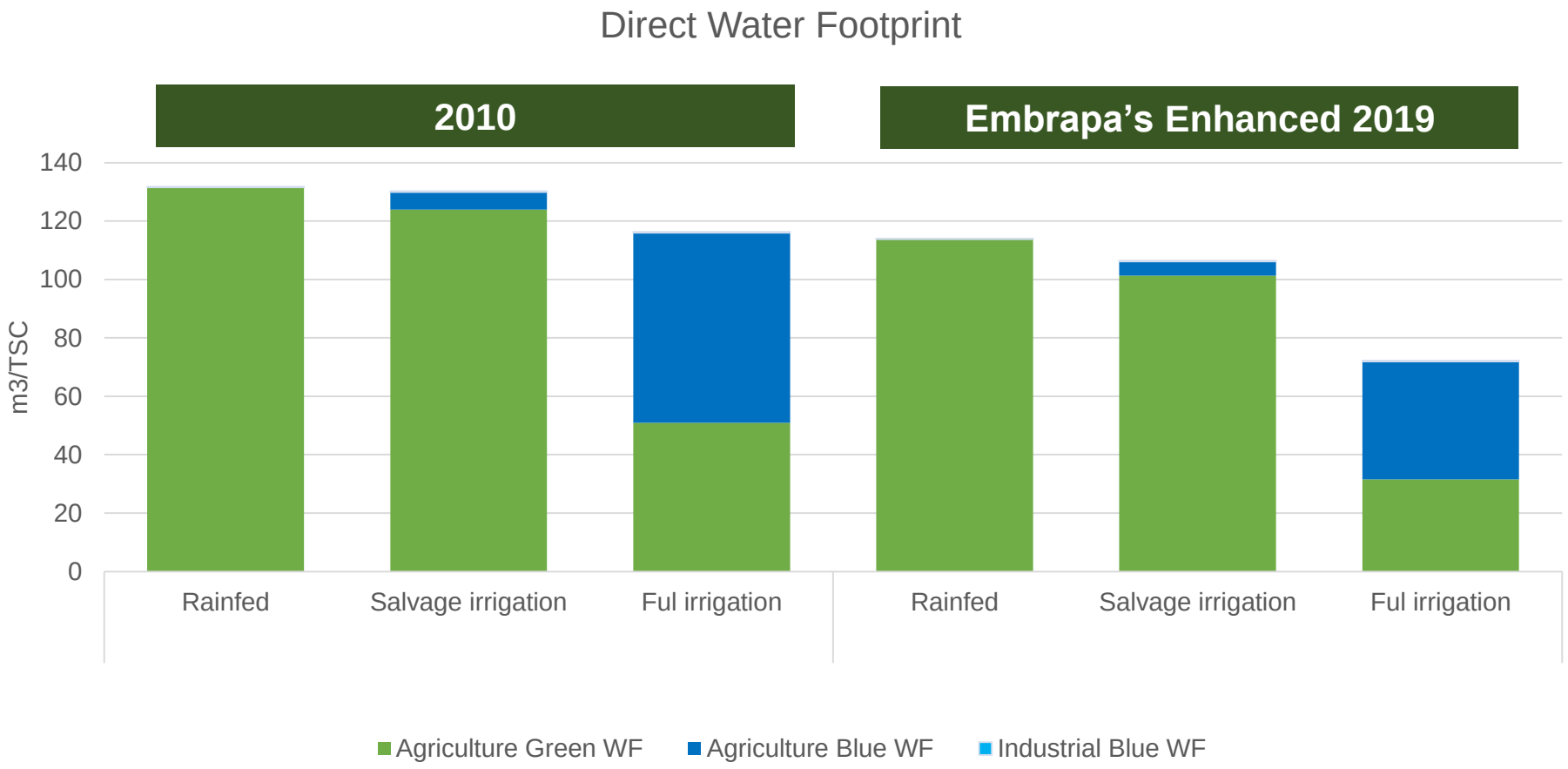
Photo: NUNES, Saulo Coelho

Brazil's sugarcane sector plays an important role in the national economy. The country is the world's biggest producer of sugarcane and sugar, and second in ethanol production, which contributes positively to the trade balance. In the last 15 years, the crop area has expanded tremendously, occupying so called "expansion" production areas, which differ from the traditional ones mainly in rainfall rates, leading producers to adopt irrigation. Specifically in the Northeast region, crops have migrated from the traditional Atlantic forest coastal areas to inland coastal tablelands that suffer long periods of water shortage. Consequently, a significant percentage of the sugarcane production area now employs irrigation. This project was conceived with the objective of quantifying the water volumes required to produce sugar cane, ethanol and sugar in the different irrigated cropping systems in typical Brazilian soil and weather conditions. Estimating water volumes used in producing a given product can be carried out in many ways. The present proposal will employ the methodology developed by Water Footprint Network (Hoekstra et al., 2011) which will be expressed in water volume per product unit, composed of "three types of water": green (groundwater from rainfall used by plants), blue (fresh surface or groundwater used in production) and grey (water volume required to assimilate the pollutant load generated during production). To reach its overall goal, the project is divided into five Action Plans, to wit: 1) A

Direct Water Footprint



Direct Water Footprint



Usefulness of the WF

- **Identify** efficiency bottlenecks
- **Identify** improvement opportunities
- **Quantify** new technologies impacts on WUE
- **Quantify** new production systems impacts on WUE
- **Monitor** Regional WUE over time
- **Coupling with Water Availability** for Sustainability Assessments

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Muito obrigado!

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