Food, Fodder and Flowers: the critical role of global and regional virtual water trade in the Nile Basin

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Introductory Remarks

For the past 3/4 decades, two main Virtual Water Trade trajectories

- **From outside to within the Basin**: as food imports (in particular to Egypt) mainly, and as food aid (Ethiopia, Sudan)

- **From within to outside the Basin**: as food exports, mainly livestock (Sudan), but as well as cash-crop exports, such as tea, coffee, and more recently flowers (Kenya and Ethiopia)

- **Within the Basin**: the 3rd trajectory, but so far less significant (in terms of volume and political economic importance)
Personally not interested in quantification of VWT but rather in qualitative analysis of the implications/linkages that VWT had/has to political processes at national, regional & global levels. But numbers are of course good to show the dimensions.
Egypt: the country where the VW concept was discovered

“Birth nation of VW”: since millennia Egypt has been gathering, storing and distributing grain, in order to cope in times of scarcity of food/water (7 years abundance, 7 years famine)

Tony Allan: ‘discovered’ the VW concept, while observing Egypt’s ongoing water management (agricultural + political) practices – and having access to national data about food imports!

For the past 4 decades, Egypt’s Water Security has been achieved through VW Imports – this invisible/silent process allowed the perception that Egypt is water self-sufficient

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Current Relevance of Virtual Water in Egypt

Blue water: 55.5 bcm/year from Nile River *

Green water: almost nil

Blue+Recycled+groundwater+desalinated (official): around 70 bcm/year

Virtual water: 30 to 34 bcm/year. Equivalent to 40% of Egypt’s total water consumption **

Egypt’s Virtual Water in numbers (in bcm)***
Total virtual imports: 30 (crops) + 2 (livestock)

Food crops: soyabean (a fodder crop), wheat and maize. From: US, Argentina, Brazil, Australia, France and Russia

Main livestock: beef, cattle and sheep. From: Australia and Brazil (and to smaller extent Sudan)

# VW in Egypt: Opportunities, Challenges and Complexities

## Opportunities

- **VWT:** Significant and growing strategic significance in the political economy, including water management/allocation

- Contributed to ensure **Food & Water Security** – food imports have balanced the water deficit and relieved pressures on fresh/blue/Nile water resources

## Challenges/Complexities

- **Highly exposed to external factors**
  - Dependent on **external**-generated water resources twice
  - Dependent on few VW suppliers and challenges of **diversification** *
  - Highly impacted by **fluctuations** in global food prices
  - Possible changes in WTO rules, and changes in trade/subsidies policies
  - **Climate** change and impacts on agriculture productivity worldwide

### Alternatives and politics

- Econ. alternatives when prices get high? Increase prices? Reduce subsidies?
- VW that has allowed continuous highly-subsidised products (eg. wheat/flour)
- **Bread riots:** social unrest and its socio-economic-political implications **

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*Breath riots in Egypt in 1977 and the ‘bread helmet’ from Tahrir Square in 2011*
Other Nile countries: VW importers or exporters?

Other Nile riparians are VW net exporters:

**VW imports (crops):** Around 5.5 bcm/year [mainly in cereals, from US, EU countries]

**VW exports (crops):** Around 10 bcm/year [tea, coffee and flowers, to EU markets and Gulf countries] *

- Tea and coffee: Key exporting crops of Kenya, Uganda and Tanzania (roots in the colonial period) and Ethiopia
- Economic returns are been superseded by those of flowers
- Khat: Another profitable crop exported by Ethiopia **

**Foreign Investment + Exports vs. Food security:**

Despite severe structural problems of food security, exports are an essential policy element of these fast-growing political economies ***

Total net VW imports in crops and livestock of individual NB countries – from inside and outside the Basin (Zeitoun, Allan and Mohieldeen, 2007)
“Land Deals” and Hydropolitics

• 2007/2008 spike on global food prices: Nile Basin attractive for foreign and national investors in commercial exported-oriented agriculture

• Why? Land and water availability, untapped potential, and several favourable contractual conditions being offer by the countries

• “Land Deals”: studies talk about 500 bcm/year/globally of VWT (in comparison to around 2,000 bcm/year of ‘normal’ international trade)

• Book: look at these developments (2013-2016), its origins, the features and trends, impacts and its transboundary ramifications

• Conclusion: most of the water being exported under both ‘old’ and ‘new’ land deals is Green water – rainfed agriculture, outside of the Nile basins, no significant transboundary impacts *

• However, Sudan is different and interesting – Book chapter on “Sudan, ‘kingmaker’ in a new Nile hydropolitics: Negotiating water and hydraulic infrastructure to expand large-scale irrigation”
Sudan: Exporting Green and Blue Water

Sudan: is by far the Nile country with the highest (unexploited) agriculture potential

Sudan is a different story from other Nile countries
Mainly exports Green Water (namely through livestock), but also Blue Water (food and cash-crops* growing in both Blue and White Nile Basins)

Virtual water exports of Sudan (bcm/year):
VW exports (livestock): 2.5 [>99% to Gulf countries]
VW exports (crops): <1 [mainly groundnuts, cotton and sugar, > 80% to outside the Basin]
Sudan: the ‘breadbasket’ of the Middle East/Arab World?

- **1970s/1980s:** a playground for experiences in terms of Virtual Water exports to water-scarce regions such as Gulf countries, Arabian Peninsula and other MENA countries

- **Rainfed vs. Irrigated Agriculture:** fertile land and water available, and very good conditions for expansion of large-scale irrigation

- **1990s:** Increasing the importance of VWT via livestock exports to the Gulf region

- **2000s:** Increasing support from Gulf countries to **infrastructure development** – hydropower and storage capacities, but also in key agribusiness companies

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**Investors/Shareholders in key Sudan projects**

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* Similar in White Nile Sugar Company and Dal Group Company
Sudan: back to large-scale irrigation

**Post-2008:** ↑FDI in agriculture, back to breadbasket aspirations

Irrigation thresholds of Sudan/Blue Nile dependent on increasing storage capacities (besides of legal agreements)*

**Recent developments:** Heightening of Roseires Dam (additional 4bcm/year storage) + GERD expected to regulate flows, increase water availability during dry months allowing Sudan to double land under irrigation

**Key message:** huge potential capacity to increase agriculture production+exports & interests (internal/external) to tap it – possible hydropolitical shockwaves

*Current legal water quota: 18.5 bcm/year
Current utilisation (official): Around 14 bcm
Potential use in full-scenario: 30/32 bcm
Presentation focused mainly on role that Global (from/to outside) VWT had in the political economic dynamics (including water management) in the Nile region.

But what about the **Intra-regional virtual water trade**?

Why is it historically and currently been so low/limited? What are the **challenges**?

On the other hand, what are the **opportunities/benefits** of promoting internal agricultural commodity trade and increasing intra-regional VWT?
Thank you for your attention!

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Intra-Basin VW Trade: Challenges and Opportunities (II)

Challenges:
Problematic regional hydropolitics (linked to Blue/Nile Water)
Challenges in diversification of trading partners
Very low levels of intra-regional trade
Limited political will towards regional economic integration

Benefits/Opportunities:
Explore intra-basin VWT of green water (delinked from Blue Water)
Collective improvement agricultural productivity
Increase Food/Water Security at national & regional levels
Decrease dependence on volatile/risky global markets, by relying more on common/regulated regional markets* **
Recommendations

• **Update studies** on Virtual Water Trade in the Nile Basin, to reflect substantial changes in the last decade

• Put regional agriculture trade in the high-level **political agenda**

• Give prominence to **economic hydro-diplomacy**: bring ‘water cooperation’ and ‘regional integration’ together through investments in agriculture sector

• Increase **riparian-to-riparian agricultural trade**; e.g. Egypt can tap into the ‘green water’ potential of upstream neighbours, decrease dependence from VWT from outside the Basin and increase economic interdependences

• Need for joint thinking about frameworks towards **Common Agricultural Policy/Market**

• NBI/C: back to the discussion on the **Agricultural Functions**: What are the options?

• **Final message**: Increasing intra-basin agricultural trade has a relevant potential to strengthen transboundary cooperation between the Nile riparian states