A New Paradigm for Sustainable Adoption of Advanced Irrigation in LDCs

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OBJECTIVE: propose a new paradigm for the *sustainable* implementation of climate-smart agriculture in Least Developed countries

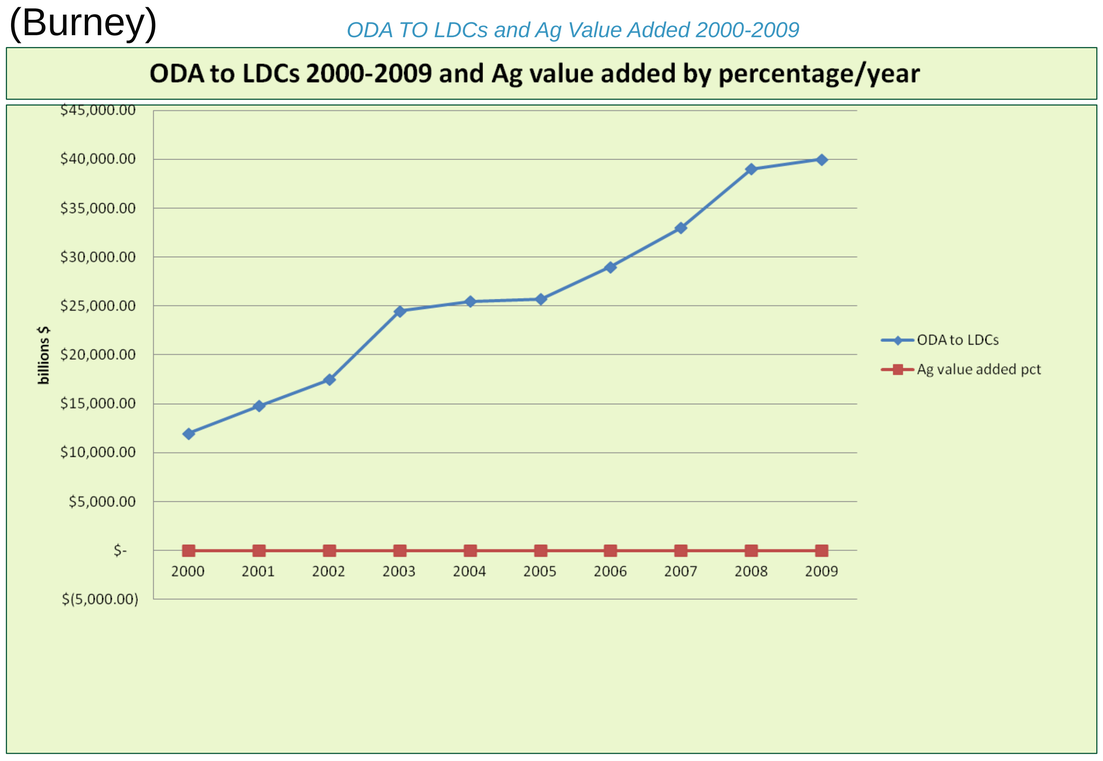
BACKGROUND: between 2011 and 2100 populations of high-fertility countries projected to triple from 1.2 billion to 4.2 billion (UNFPA, 2013), and, in that period, agricultural production needs to increase by 70% overall, and by 100% in LDCs (FAO, 2009). But rainfed crop yields are declining and the number of extremely poor people increased by 3 million from 2002-2007 (UNCTFD, 2010). The majority of agricultural GHG emissions-74%- originate in low and middle-income countries (Wollenberg, et al, 2012). Two-thirds of all LDCs will be living in water-stressed conditions by 2030.

PURPOSE: identify a paradigm that is sustainable over time and space, adaptive, reliable, replicable, cost-effective and proven to provide generalizable organizational and institutional methodologies for the successful implementation of climate-smart agriculture,

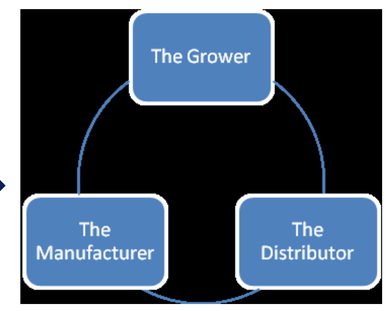
THE DEVELOPMENT MODEL HAS FAILED

"Dis-adoption" of drip irrigation kits in African LDCs is at 84% (Burney)

ODA TO LDCs and Ag Value Added 2000-2009



The Paradigm →



The Irrigation Distribution Network

75% of all jobs in agriculture are non-farming.
The "Irrigation Distribution" model provides:

1. Professional local support and manufacturing
2. Employment
3. Credit
4. Supplies
5. Deliveries
6. Training

Potato yields in Kenya under drip irrigation at two spacings (Vered, Netafim)

EMITTER SPACING 0.5m NOT UNIFORM IRRIGATION

15 t/ha

Kijablii-Ropley Farms, Kenya

Emitter spacing 0.3m Uniform irrigation

45 t/ha →

The "Irrigation Distribution" Model

Assumptions:

- **In order to provide sufficient production in a sustainable manner, farming needs to be professionally managed and supported**
- **Irrigation systems have to be highly efficient and have adequate distribution uniformity**