Corporate stewardship
– Partnering to Improve Agricultural practices

Mumbai
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Flow of Presentation

Agriculture in India – Overview

Present Challenges

Why Sustainability?

The Way Out

Ensuring sustainability

Corporate Stewardship – Few Examples

Going Forward
Agriculture in India – An Overview

High Dependency on Agriculture
- 60.53% of total land area under agriculture
- 58.45% of the Indian population is dependant on agriculture
- 80% of farmers are small & marginal

Water Intensive Crop Dominance
- Water Intensive crops- wheat and paddy, most consumed food grains
- Production of such crops expected to grow by 80% by 2050
- 89.5% of the available water is used by agriculture sector and the consumption to increase by 68.8 trillion lit by 2025

Water Account Deficit
- Water reserve - 39% ground water & 61% surface water
- Consumption in Agriculture - 64% Ground water & 36% Surface water i.e. reverse pattern thus creates deficit
- Per capita availability to decline 1341 cubic meter in 2025 from current 1545 cubic meter

Subsistence & Traditional way of Agriculture
- Only 10% coverage from MI, rest in though tradition methods
- Monsoon dependence for irrigation to crops
- Lack of water harvesting structures
- Less crop diversification & market orientation
Present Challenges

**Low Productivity**
- Traditional method of crop cultivation
- Insufficient mechanisation of about 23% only
- Insufficient credit availability

**Water Loss at the farm gate**
- Conventional flood irrigation
- Leaching, Increased soil salinity & depletion of fertility

**Excessive Power Usage**
- Harnessing ground water through tube wells
- Declining water table- 72 % of India under crucial zone

**Labour Intensive**
- High labour intensive practices – manual seed sowing, intercultural and harvesting
- Movement of rural labour to urban for better living is about 30%
Why Sustainability?

1. Population Explosion
   - India - The second most populated country
   - 17.55% of world’s population resides in India

2. Food Requirement
   - CAGR 1.82%
   - Food Production (Million Tonnes): 82, 108.4, 129.6, 176.4, 209.8, 218

3. Water Requirement
   - Continuously Increasing Demand & Static Supply of Water
   - Year 2010 2025 2050
     - Irrigation 688 910 1,072
     - Drinking Water 56 73 102
     - Industry 12 23 63
     - Energy 5 15 130
     - Others 52 72 80
     - Total 813 1,093 1,447

- Requirement of Water by 2050 is 1,447 BCM
- Utilizable Water by 2050 is 1,123 BCM
Why Sustainability?

4. Shrinking Arable Land (% of total land area)

5. Irrigation water demand

India is the world's largest user of ground water in agriculture – 61%

- Total water demand by 2030 = 700 bcm
- 85% used for producing food alone
- The total water supply will only rise to 744 bcm, barely half the total requirement.

Source: IWMI, Indian express

Water Stress... Alarmingly Near!

As per international criterion, less than 1700 (cu.m / capita / year) is considered as water stressed.

Water availability in India is 1000 (cu.m / capita / year), indicating that 70% of the global area including a large part of India will become water stressed by 2025.
Why Sustainability?

India has over 20 million irrigation wells. We add 0.8 million/year. Every fourth cultivator owns an irrigation well; non-owners depend on groundwater markets.

- Indian Agriculture - world’s largest user of ground water since 1975
- Increasing population & intensive diversification of farming have fired groundwater boom

A huge imbalance!

Water reserve in India:
- Ground Water: 39%
- Surface water: 61%

Percentage of Total Irrigation Water used:
- Ground Water: 64%
- Surface water: 36%
The Way Out

Increase Farm Productivity
- Improved agricultural practices

Optimum Utilisation of Resources
- Prudent and efficient usage of Land, Water and Energy

Reduction of Burden on Groundwater
- Rain water harvesting, Community Irrigation,

Technology Dissemination
- Modern technologies - Drip Irrigation, farm mechanisation

• Creating awareness about improved agricultural practices (7.26 billion INR allocated in FY13-14 for training and extension by central govt.)
• Bring commodity crops under micro-irrigation (80% area left out)
• More and more area under micro-irrigation (current penetration <10%)
• Disseminate modern technology via extension services
• Propagate community irrigation for small land holders
Drip Irrigation - A Viable option

- Enhanced Productivity 40-50%
- Water Saving 50%
- Fertilizer Saving 34%
- Energy Saving 33%
- Less Labour Requirement 40%

Source - Socio-Economic Impact Assessment By Agriculture Finance Corporation, Govt. of India

- Water and nutrients supplied directly to root zone, improved uptake by plants
- Enhanced quality of produce
- Soil Conservation
- Hassle free intercultural operations
- Saline water be used for irrigation

Drip Revolution - Irrigating Plants not the Soil!
Ensuring sustainability -

How do we ensure sustainability

- Drip Irrigation Emphasis
  - Highest water use efficiency (90% plus)
  - Many obvious benefits

- Increased Connect With the Society
  - Creating Awareness for improved practices
  - Demonstrating technologies
  - Sharing success and enabling replication

- Collaboration - with Key industry players
  - Joint promotion and better resource utilisation
  - Cross learning and promoting ideas

- Alliances with NGO’s/ Government bodies
  - For disseminating latest information
  - Increased reach in the rural areas
### Corporate Stewardship - Few Examples

| Drip Irrigation Emphasis | So far covered 250000 farmers & 3.3 lakh Ha.  
<table>
<thead>
<tr>
<th></th>
<th>Plan to reach more than 65000 farmers in 2013</th>
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</table>
| Increased Connect With the Society | Moti Tokri in Gujarat  
|                         | Family Drip System in Jharkhand & Kerala |
| Collaboration - with Key industry players | Bharti Walmart Tie-up  
|                         | Unilever- Marcatus Sustainability Initiative  
|                         | Coca-Cola initiative in Rajasthan  
|                         | Collaboration with Bayer Crop Sciences |
| Alliances with NGO’s/ Government bodies | Irrigation Association of India and state chapters  
|                         | CARE, Dilasa, Deshbandhu |
Serving For and Serving With the Society

Revival of a tribal village - Moti Tokri, Gujarat

A village in the dark:
- Crops grown under rain fed conditions
- Low productivity
- Shallow wells - Negligible availability of water
- Lack of exposure to modern farming practices - fertilizers, manures, etc.

Ray of Hope - An Initiative for change:
- Netafim, NGO CARE and GGRC came together to help
- 23 farmers identified and made the beneficiaries
- Key farmers taken for an exposure trip
- Conducted awareness meetings and field demonstrations
- Provided full agronomy support
**Farmers’ Speak**

1. “It is very easy to irrigate and fertigate the total field with drip irrigation system. It is very beneficial to us now we are planning to cultivate water melon in drip after chilly in drip irrigation system”

2. “We get good income in chilli than cotton or maize. We save our labour in irrigation, fertigation and weed control. We are also able to irrigate our field at night when power is available at night”

**Benefits Harnessed**

<table>
<thead>
<tr>
<th>Crop</th>
<th>Av. Gross Income before projects (Rs./ acre)</th>
<th>Av. Gross Income after projects (Rs./ acre)</th>
<th>Yield before drip</th>
<th>Yield after drip</th>
<th>Increase in Yield /Ha.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cotton</td>
<td>32,000 - 40,000</td>
<td>53,000 - 64,000</td>
<td>2 Tons/ Ha.</td>
<td>5 Tons/ Ha.</td>
<td>140%</td>
</tr>
<tr>
<td>Maize</td>
<td>12,000 - 14,000</td>
<td>20,000 - 22,000</td>
<td>2 Tons/ Ha.</td>
<td>3.5 Tons/ Ha.</td>
<td>57%</td>
</tr>
<tr>
<td>Tomato</td>
<td>56,000 - 75,000</td>
<td>1,40,000 - 1,70,000</td>
<td>65 Tons/ Ha.</td>
<td>150 Tons/ Ha.</td>
<td>144%</td>
</tr>
<tr>
<td>Chilli</td>
<td>24,000 - 32,000</td>
<td>44,000 - 48,000</td>
<td>4 Tons/ Ha.</td>
<td>7.5 Tons/ Ha.</td>
<td>54%</td>
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Reaching out to the unreached - FDS in Jharkhand

Agriculture Scenario - Jharkhand
- Small and marginal land holdings, Low productivity
- Mono cropping with paddy, Plateau terrain
- Rain fed agriculture & inadequate irrigation facilities

Netafim, Jharkhand State Livelihood Promotion Society (JSLPS) and UNDP came together

Family Drip System
Water Source - Wells, river, borewell, tanks, etc.
- Easy installation on marginal land holdings
- Suitable for cultivation of vegetables and other crops

What was done?
- Exposed to FDS - A gravity based low cost drip irrigation system
- Classroom Training
- Training on field preparation & installation of FDS
- Guidance for selection of vegetable crops
- 18000 units installed
Benefits Harnessed

- An efficient irrigation (Water) management technology
- Empowered farmers to overcome drought
- Reduced dependency on monsoon to cultivate crops
- Increased livelihood options

Yield Increase

<table>
<thead>
<tr>
<th>CROP</th>
<th>Yield Increase / Ha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tomato</td>
<td>100 Tons</td>
</tr>
<tr>
<td>Cabbage</td>
<td>75 Tons</td>
</tr>
<tr>
<td>Capsicum</td>
<td>75 Tons</td>
</tr>
<tr>
<td>Potato</td>
<td>50 Tons</td>
</tr>
<tr>
<td>Ginger</td>
<td>50 Tons</td>
</tr>
<tr>
<td>Bitter gourd</td>
<td>25 Tons</td>
</tr>
</tbody>
</table>
Shaking Hands with the Industry Partners

The Bharti Walmart tie-up:

Objective
- To provide training on water conservation and sustainable food production to its multi thousand farmer base
- Install Drip Irrigation System in their FTC under Direct Farm Initiative

Present Status
- Demonstration plots have been set in North and Central states
- Farmers are trained on basic agricultural Practices
- Started getting lead from Walmart farmers

Impact/Result
- Expand reach via the Walmart network
- Encompass more no. of farmers in coming years
- Improve farmer income by 20%

Netafim will provide water conservation and sustainable food production training to 40,000 farmers by 2015
Shaking Hands with the Industry Partners

**Objective**
- Unilever-Marcatus Sustainability Initiative
  - Saving of natural resources
  - Make farmers adopt drip irrigation system
- Alliance with Coca-Cola
  - Better utilisation of groundwater
  - Increase vegetable crop area
- Collaboration with Bayer Crop Sciences
  - Trials for Bayer’s pesticide in Netafim DI field
  - Joint Promotion

**Present Status**
- Unilever-Marcatus Sustainability Initiative
  - Five demonstration plots organised in two states
- Alliance with Coca-Cola
  - Collaboration since 2008
  - Drip irrigation installed for 218 farmers
- Collaboration with Bayer Crop Sciences
  - Pesticide of Bayer tested at Netafim Israel
  - Joint trials in sugarcane crop in Maharashtra

**Result/Impact**
- Unilever-Marcatus Sustainability Initiative
  - Extensive reach
  - Joint promotion of the products
- Alliance with Coca-Cola
  - Vegetable production of desired quality
  - Enhanced production-Mutual benefit
- Collaboration with Bayer Crop Sciences
  - Increase penetration of area
Going Forward

1. Public Private Partnership in Maharashtra
   - Under PPP for Integrated Agricultural Development (PPP-IAP)
   - To Increase productivity with market linkage
   - Netafim to start with two crops maize and cotton

2. Collaboration with Deloitte
   - To facilitate the farm loans to either a group of farmers or potential big farmer
   - Economic upliftment of the farmers in backward areas

3. Focus on commodity crops
   - To introduce and propagate drip irrigation in commodity crops like paddy and wheat
   - Enhance the productivity and quality

4. Alliances with NGOs and Universities
   - Collaborate with NGOs to spread knowledge in interior areas
   - To set up a demonstration plot in university research farms
   - Educate students about drip technology
THANK YOU