Grow More With Less™

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NETAFIM At a Glance

• Founded in 1965 at Kibbutz Hatzerim – introduced breakthrough concept of drip irrigation
• Born out of a need to make the Israeli desert bloom
• Ag2Ag business model
• Global leader in drip and micro-irrigation solutions: state-of-the-art products, crop management technology systems and know-how transfer
NETAFIM™ - Brief Timeline

• In the 1930s, Israeli water engineer Simcha Blass noticed that trees grow better next to a water source that flows slowly.
• 17 years later, he designed and built simple drippers that he used for his initial drip irrigation trials.
• Netafim established its first factory, based on Blass’ invention, at Kibbutz Hatzerim in 1966
• 1973 - Kibbutz Magal and 1978 - Kibbutz Yiftach join the company
• 1981 - First international subsidiary, Netafim USA
• 1998 - Activities of three kibbutz partners incorporate into one company
• 2011 - Permira private equity firm acquires controlling interest
• 2015 – Netafim celebrates 50th Anniversary
Global Presence

16 manufacturing plants
27 subsidiaries
Water Use in Agriculture

- About 70% of available water goes to agriculture
- 17% of all cultivated areas are irrigated
- 79% of irrigated areas use flooding

saving 15% in agriculture use will more than double available water for domestic use

Source: ICID - CIID
Problems with Flood & Furrow Irrigation

• Water source depletion and contamination, excessive use of chemicals
• Greenhouse gases emitted to the environment, thereby boosting a warming trend
• Time consuming and increases labor use
Drip Irrigation

IRRIGATE THE PLANT, NOT THE SOIL

- **Increases productivity**: delivers up to 50% higher crop yield with fewer resources.

- **Suitable for different landscapes**: can be designed for use in all types of terrain and soil conditions.

- **Saves water**: uses 30-50% less water than conventional watering methods such as sprinklers or flood irrigation, and enables utilization of treated wastewater.

- **Protects the environment**: prevents soil erosion, nutrient run-off, and groundwater contamination by chemicals and fertilizers, and reduces production of methane gas.

- **Reduces weeds**: reduces weed growth because areas between the plants are not irrigated.
Food, Water, Land Nexus - Key Issues & Challenges

- Food, fodder, fiber and biofuel: competing for the same resources
- Water: critical and limited resource
- Arable land: finite resource
- Energy: rising prices
- Social, political and environmental concerns: poverty alleviation, gender equality, urbanization

- Drip irrigation holistically addresses the issues at the intersection of all these challenges.
Mass Adoption of Drip

• Goal: Mass adoption of drip (MAD) across all available cultivable land
  • Being at the heart of the food-water-land nexus, drip has great potential to contribute to sustainable development.
  • Drip irrigation is the core business, and by advancing MAD, Netafim secures the company's sustainable future.
• Emphasis on addition of commodity crops in addition to cash crops
• Mass adoption of drip irrigation involves
  • Expanding its affordable application to all major commodity crops
  • Improving access for smallholders, especially in emerging economies, through education, financial support and policy development
Mass Adoption of Drip in Action

- Development new technologies and solutions to improve irrigation performance
- Collaborations with private sector companies such as large food and beverage manufacturers
- Engagement with regulators and policy makers
- Participation with global bodies such as the UN Global Compact (UNGC), the UN CEO Water Mandate and the UN Global Compact LEAD initiative
Netafim Sustainability Strategy 2020

Make drip irrigation the accessible solution of choice for irrigated crops all over the world

- Alignment of priority issues with the material aspects defined by the Global Reporting Initiative G4 framework.
Project Implementation

- Sales through Dealers
- Turnkey Projects

**INDIA: Jharkhand**

- Since 2012, Netafim successfully implemented FDS helping to move smallholders from below the poverty line to above the poverty line.

- Organizing Critical Mass of Smallholders: Pilot of 30 farms, more than 18,000 today.

- Financing is essential: cost is $500, 50% from state government grant. 50% financed by farmer. Some farmers were able to repay loan in just 1-2 growing seasons.

- UNDP and Bank of India lent financial support.

- Training, Follow Up and Post-Harvest Management: Linkages established with local supportive Farmer Clubs/ bodies and relevant Government organizations.
Jharkhand: Partnerships

The project wouldn't be possible without important partnerships to put together the many parts such as training, financing, and organizing.

- Governments
- NGOs
- Jharkhand State Livelihood Promotion Society
- UNDP
- Bank of India
# Jharkhand: IMPACT

<table>
<thead>
<tr>
<th>Crop</th>
<th>Before</th>
<th>After</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOMATO</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td>CHILLY</td>
<td>3</td>
<td>6.25</td>
</tr>
<tr>
<td>KARELA</td>
<td>1.25</td>
<td>2.5</td>
</tr>
<tr>
<td>CABBAGE</td>
<td>3.75</td>
<td>7.5</td>
</tr>
<tr>
<td>CAPSICUM</td>
<td>3.75</td>
<td>7.5</td>
</tr>
<tr>
<td>POTATO</td>
<td>2.5</td>
<td>5</td>
</tr>
<tr>
<td>GINGER</td>
<td>2.5</td>
<td>5</td>
</tr>
</tbody>
</table>

**Yield Per 1/4 Acre Land (units in tonnes)**

<table>
<thead>
<tr>
<th>Crop</th>
<th>Before</th>
<th>After</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOMATO</td>
<td>2320 KGS</td>
<td>9000 KGS</td>
</tr>
<tr>
<td></td>
<td>@ $.42</td>
<td>@ $.08</td>
</tr>
</tbody>
</table>

**Financials**

<table>
<thead>
<tr>
<th>REQUISITE</th>
<th>FINANCIALS</th>
</tr>
</thead>
<tbody>
<tr>
<td>DRIP IRRIGATION SYSTEM WITH TANK</td>
<td>$400</td>
</tr>
<tr>
<td>PUMP (FOR FILLING TANK)</td>
<td>$75</td>
</tr>
<tr>
<td>AGRICULTURAL INPUTS LIKE FERTILIZERS, PESTICIDES ETC</td>
<td>$100</td>
</tr>
<tr>
<td>OWNERS CONTRIBUTION</td>
<td></td>
</tr>
<tr>
<td>LABOUR</td>
<td>$50</td>
</tr>
<tr>
<td>COST OF PROJECT</td>
<td></td>
</tr>
<tr>
<td>ESTABLISHMENT OF ONE UNIT OF DRIP IRRIGATION ON 1/4 ACRE LAND</td>
<td>$500</td>
</tr>
<tr>
<td>(DRIP IRRIGATION SYSTEM + AGRICULTURAL INPUTS ONLY)</td>
<td></td>
</tr>
<tr>
<td>50% SUBSIDY</td>
<td>$250</td>
</tr>
<tr>
<td>BANK LOAN / SELF INVESTMENT</td>
<td>$250</td>
</tr>
</tbody>
</table>

**Annual Crop Plan/Costs**

<table>
<thead>
<tr>
<th>TOMATO CROP 1</th>
<th>CABBAGE CROP 2</th>
<th>BITTERGOUR D CROP 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>JULY-NOV</td>
<td>NOV-JAN</td>
<td>FEB-JUNE</td>
</tr>
<tr>
<td>DRIP COST</td>
<td>$400</td>
<td>0</td>
</tr>
<tr>
<td>PUMP</td>
<td>$75</td>
<td>0</td>
</tr>
<tr>
<td>INPUTS</td>
<td>$100</td>
<td>$100</td>
</tr>
<tr>
<td>PLANT COST</td>
<td>$45</td>
<td>$45</td>
</tr>
<tr>
<td>LABOUR</td>
<td>$50</td>
<td>$50</td>
</tr>
<tr>
<td>TOTAL COST</td>
<td>$670</td>
<td>$195</td>
</tr>
<tr>
<td>PRODUCTION</td>
<td>2320 KGS @ $.42</td>
<td>9000 KGS @ $.08</td>
</tr>
<tr>
<td>SALES</td>
<td>$970</td>
<td>$720</td>
</tr>
<tr>
<td>GROSS PROFIT</td>
<td>$300</td>
<td>$525</td>
</tr>
<tr>
<td>BANK INSTALLMENT</td>
<td>$250</td>
<td>0</td>
</tr>
<tr>
<td>NET PROFIT</td>
<td>$50</td>
<td>$525</td>
</tr>
</tbody>
</table>

**Pay Back Period**

- **BC RATIO**: 2.23
- **NET BENEFIT**: $1095
- **ANNUAL CROP PLAN/COASTS**: 5 Months
Internship Assignments
Assignment 1: Analysis of Expansion Opportunities in the US

- Market potential calculated on the basis of conversion to drip and replacement of drip lines opportunities
- Identification of top 15 states (Core and Emerging) by Sales Benchmark Index, a consulting firm (90% national potential)
- Analyzing opportunities at a county level
  - Identification of counties by potential, crop types, propensity to buy and growth
- In general, emerging regions offer greater market potential, almost 81% of total potential.
- Emerging regions offer greater potential for converting irrigated areas to drip.
- Core regions offers more opportunities to replace existing drip lines.

<table>
<thead>
<tr>
<th>Top States</th>
<th>Core/Emerging</th>
</tr>
</thead>
<tbody>
<tr>
<td>CALIFORNIA</td>
<td>C/E</td>
</tr>
<tr>
<td>NEBRASKA</td>
<td>E</td>
</tr>
<tr>
<td>ARKANSAS</td>
<td>E</td>
</tr>
<tr>
<td>TEXAS</td>
<td>C/E</td>
</tr>
<tr>
<td>MISSISSIPPI</td>
<td>E</td>
</tr>
<tr>
<td>IDAHO</td>
<td>E</td>
</tr>
<tr>
<td>FLORIDA</td>
<td>C/E</td>
</tr>
<tr>
<td>MISSOURI</td>
<td>C/E</td>
</tr>
<tr>
<td>GEORGIA</td>
<td>C/E</td>
</tr>
<tr>
<td>KANSAS</td>
<td>E</td>
</tr>
<tr>
<td>WASHINGTON</td>
<td>E</td>
</tr>
<tr>
<td>MICHIGAN</td>
<td>E</td>
</tr>
<tr>
<td>MINNESOTA</td>
<td>E</td>
</tr>
<tr>
<td>ILLINOIS</td>
<td>E</td>
</tr>
<tr>
<td>COLORADO</td>
<td>E</td>
</tr>
</tbody>
</table>

Top States:
- CA_FRESNO
- CA_SAN
- JOAQUIN
- CA_TULARE
- CA_KERN
- FL_PALM
- BEACH
- AR_KANSAS
- CA_KINGS
- CA_COLUSA
- AR_POINSETT
- CA_MADERA
- TX_SHALE
- CA_MERCED
- CA_IMPERIAL
- MS_BOLIVAR
- CA_STANISLAUS
- NE_YORK
- AR_MISSISSIPPI
Assignment 2: Netafim Case Study for Caring for Climate Publication

- **Caring for Climate Publication** – Launched by the UN Secretary-General Ban Ki-moon in 2007, “Caring for Climate” is the UN Global Compact, the UN Environment Program and the secretariat of the UN Framework Convention on Climate Change’s initiative aimed at advancing the role of business in addressing climate change.
- Call for business case studies that both highlight the business benefits of taking adaptation action to increase societal resilience, while putting in place their own strategies and activities. Case studies will be featured in a **Caring for Climate report that will be released at the Caring for Climate Business Forum at COP-21 in December in Paris.**
- Netafim Case Study - Advancing drip irrigation and Nutrigation in rice in Tamil Nadu, India
- Partnership with Tamilnadu Agricultural University and field demonstrations since 2010
- **Highlights:**
  - Water savings of 40 to 50 % as compared to flood irrigation, during the crop growth duration.
  - Increase in yields ranges from 30 to 50 % by drip.
  - 25 % fertilizers saving due to Nutrigation™.
  - The income of farmers has also been increased due to rotation with other cash crops in the region.
  - There can be around 36 % reductions in CO2 equivalent emissions with drip irrigated rice as compared to transplanted rice during the crop growth duration.
Assignment 3: Netafim Women

• Greater outreach to women farmers and inclusion in agriculture
• Goals – Knowledge provision, Livelihoods generation, Rural development
• Business benefits - Increase customer base, pool of influencers and MAD adopters, Greater alignment with Netafim Values (e.g. Walk the Talk), Brand enhancement
• Assignment Activities
  • Research on status of women farmers globally and in developing countries
  • Research on women’s empowerment programs by corporations
  • Research on CSR strategy development by companies
  • Recommend project ideas and next steps

Female farmers receive only 5% of all agricultural extension services from 97 countries

Only 10% of total aid for agriculture, forestry and fishing goes to women.

An increase to a woman’s income of $10 achieves the same improvements in children’s nutrition and health as an increase to a man’s income of $110