Jerusalem Institute for Israel Studies
Milken Innovation Center

Grow More With Less™

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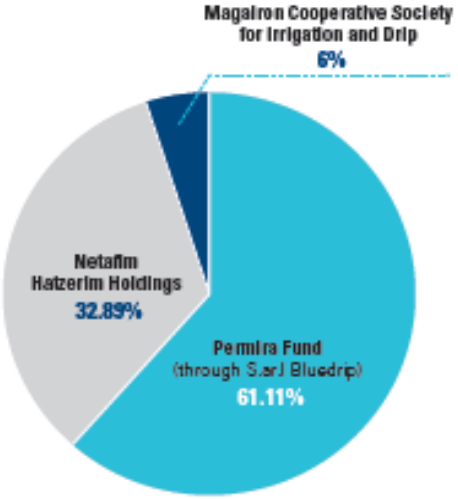
NETAFIM At a Glance

- 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

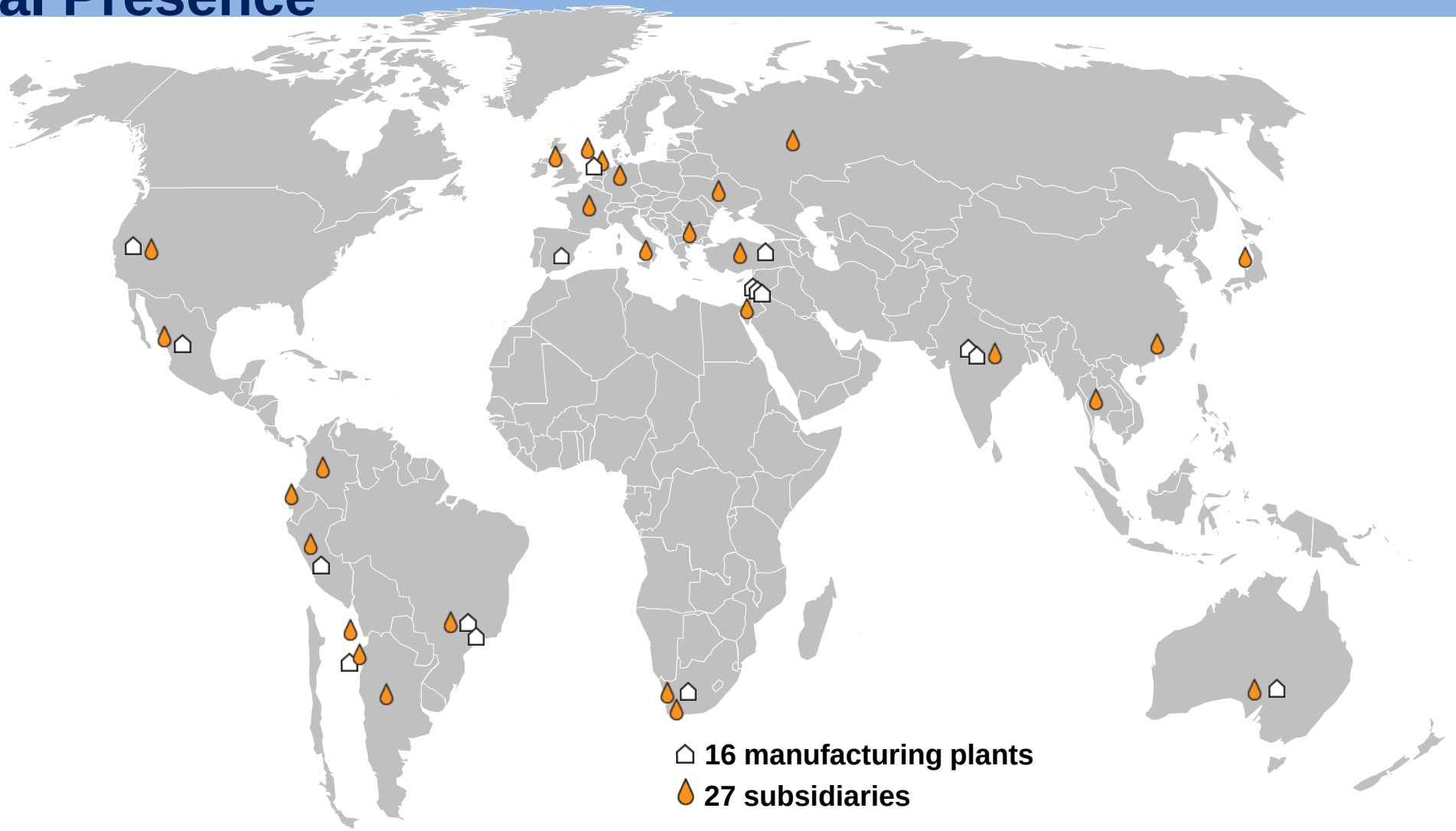
50 YEARS OF SHAPING THE FUTURE

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

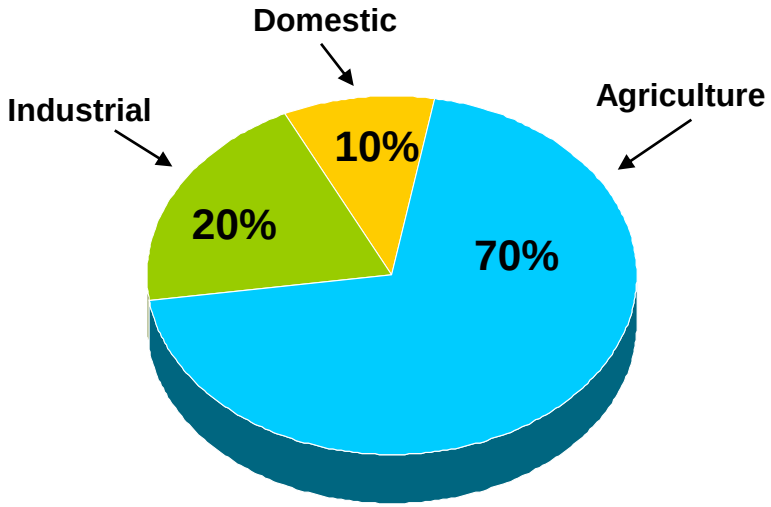


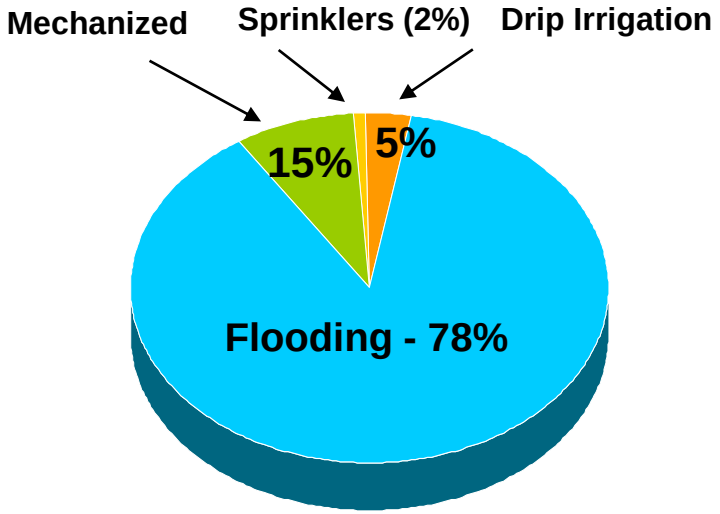
Global Presence



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

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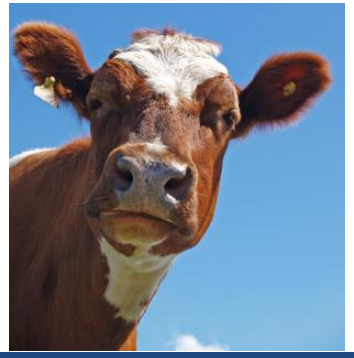
Drip Irrigation

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.**



FOOD FEED FIBER FUEL

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

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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

UNITED NATIONS GLOBAL COMPACT

The CEO Water Mandate

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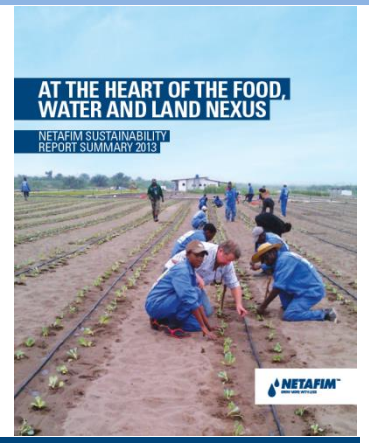
Netafim Sustainability Strategy 2020

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.



Help our cutomers achieve sustainable productivity	Increase awareness of the benefits of drip irrigation and access to drip around the world	Conduct our business ethically, responsibly and transparently
Technology and innovation Deliver affordable technology to enable mass adoption of drip irrigation	**Access and education** Raise awareness and educate farmers in the use of drip irrigation	**Employee engagement** Ensure employee engagement in our sustainability goals and ethical behavior
Agri-tech partnerships Engage in global partnerships to advance technology uptake and adaptation to local needs	**Policy support** Maintain active involvement in the UN and other forums to advance sustainable productivity policy	**Lean supply chain** Reduce our direct enviromental impacts, and contribute to global efforts to mitigate climate change
Smallholder solutions Increase reach to smallholder farmers with tailored solutions	**Private-sector collaboration** Collaborate with major private-sector companies to drive sustainable productivity through their supply chain	**End-of-life impact management** Reduce our indirect environmental impacts through end-of-life dripperline recyling

PRIORITY IMPACTS

Mass adoption of drip irrigation Indirect economic impacts: G4-EC8	**Material use and recycling** Materials: G4-EN1 Products and services: G4-EN28
Sustainable productivity Indirect economic impacts: G4-EC8	**Water conservation** Water: G4-EN8
Enhancing customer capabilities Product and service labeling: G4-PR5	**Employee performance** Employee practices: G4-LA1 Health and safety: G4-LA6 Training and education: G4-LA10
Advancing public policy Indirect economic impacts: G4-EC8 Public policy: G4-SO6	

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

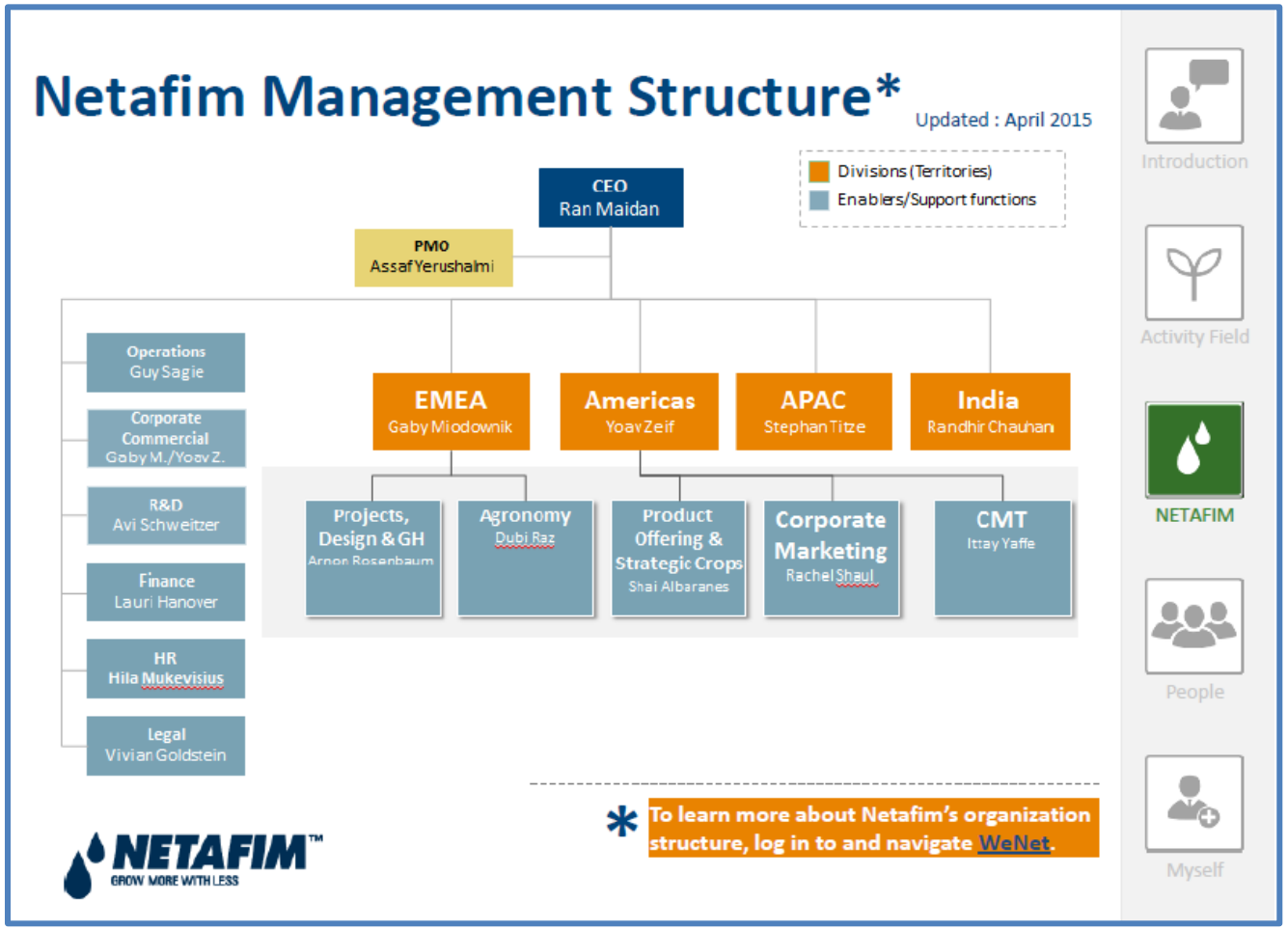
Jharkhand: IMPACT

Yield Per 1/4 Acre Land (units in tonnes)		
Crop	Before	After
TOMATO	5	10
CHILLY	3	6.25
KARELA	1.25	2.5
KHEERA	2.5	5
CABBAGE	3.75	7.5
CAPSICUM	3.75	7.5
POTATO	2.5	5
GINGER	2.5	5

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

ANNUAL CROP PLAN/ COSTS	TOMATO CROP 1 JULY-NOV	CABBAGE CROP 2 NOV-JAN	BITTERGOURD CROP 3 FEB-JUNE
DRIP COST	$400	0	0
PUMP	$75	0	0
INPUTS	$100	$100	$100
PLANT COST	$45	$45	$80
LABOUR	$50	$50	$50
TOTAL COST	$670	$195	$230
PRODUCTION	2320 KGS @ $.42	9000 KGS @ $.08	2500 KGS @ $.30
SALES	$970	$720	$750
GROSS PROFIT	$300	$525	$520
BANK INSTALLMENT	$250	0	0
NET PROFIT	$50	$525	$520
PAY BACK PERIOD	5 Months		
BC RATIO	2.23		
NET BENEFIT	$1095		

Management Structure



Internship Assignments

Assignment 1:
Analysis of Expansion Opportunities in the US

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- 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.

Top States	Core/Emerging
CALIFORNIA	C/E
NEBRASKA	E
ARKANSAS	E
TEXAS	C/E
MISSISSIPPI	E
IDAHO	E
FLORIDA	C/E
MISSOURI	C/E
GEORGIA	C/E
KANSAS	E
WASHINGTON	E
MICHIGAN	E
MINNESOTA	E
ILLINOIS	E
COLORADO	E

Top Counties
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

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- **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

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- 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