Introduction of Drip Irrigation System and Clean Water Supply System

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11 June 2014
1. Company profile
2. Drip irrigation system
3. Water condition in the world
4. Clean water supply system
5. Conclusion
Company profile

Founded: July 1, 1955
Head office: Iwata, Shizuoka
Capital: 85.7 billion yen
Sales: 1,410 billion yen
Sales by region
Overseas: 87.4%
Domestic: 12.6%
Employees: 53,382
Group companies: 140

(as of March 31, 2014)
(consolidated, from Jan. 1, 2013 to Dec. 31, 2013)
Diversity of our business

- Motorcycles
- Recreational Off-highway Vehicles
- All-Terrain Vehicles
- Snowmobiles
- Golf Cars
- Personal Watercraft
- Generators
- Boats
- Pumps
- Electric Vehicles
- CATs (China Electric Vehicles)
- Electrically Power Assisted Bicycles
- Outboard Motors
- CATs (China Electric Vehicles)
- Automobile Engines
- Clean Water Supply System
- Industrial –use Unmanned Helicopters
- Intelligent Machinery
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Drip irrigation system
Display of the variety model in Nigeria
There are so many of the copy products
Customer is conscious of price instead of quality
Traditional watering in Senegal

- Watering by only manpower is hard work and uneven
- Labor charge to hire another person is big burden
- Women & children engage the fetching water → Is there any solution?
Introduction of the Drip irrigation system

◆ How to arrange the fund? How to maintain this system?
Cross-sectoral cooperation

◆ NGO  
Collection of the money & training

◆ Drip irrigation maker  
Operation & maintenance support

◆ YAMAHA  
Supply the engine pump & training
Drip irrigation system with the engine pump

◆ Only a person
Explanations to villagers by NGO, Yamaha, and government
Cost efficient and increase the productivity

◆ Cost efficient
  Total cost will be decreased due to increase yield, even though the first investment is required

◆ Increase the productivity
  Effective watering bring much time, which increase the maintenance time for the land and crops

Before and after: Manpower only vs. Drip irrigation

Watering by manpower: Uneven
Establish the new pump business with drip irrigation

◆ Stimulate the local and introduce this system at 600 Villages in Senegal
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Peoples suffer from access the clean water

AFRICA 340 million

ASIA 480 million

出所: World Health Organization and unicef, PROGRESS ON SANITATION AND DRINKING WATER 2010 UPDATE
Water condition in Burkina Faso 1/3
Capital: Ouagadougou in Burkina Faso 2/3
Sikaku in Burkina Faso 3/3

Teacher and student

Color of river

Railway to Ivory Coast
Water condition

Water business

Water business
Water condition in Mali 1/4
Capital: Bamako in Mali 2/4

Niger river
Water business in Mali 3/4

Supermarket

DIAGO: 0.5L
Tomboucton: 1.5L
Capital: Dakar in Senegal 2/3
Water condition in Mauritania 1/3
Nouakchott in Mauritania 2/3
Local in Mauritania 3/3
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Clean Water Supply System
History of Clean Water Supply System
History of Clean Water Supply System

Motorcycle factory:

Established in 1974

Water purifier for personal home use

The expatriates had trouble with piped water. YAMAHA developed and released a water purification system for personal use in 1991

Clean Water Supply System

Monitoring site & Support by Public Institution
Pilot monitoring site in Asian countries

- Development: Collection of technical data.
- Sales: Monitoring operation and maintenance.

1. Cilacap
2. Karawang
3. Dong Thap
4. Chau Thanh A
5. Mongkul Borei
6. Vientiane
7. Yangon
8. Puttalam

- **Indonesia**
  - ① Ministry of Health ② Rotary Club
  - River ③ The People Committee ④ Hospital
  - Village

- **Vietnam**
  - ⑤ Ministry of Health
  - River Village

- **Cambodia**
  - ⑥ Ministry of Health
  - River Hospital

- **Laos**
  - ⑦ Water & Sanitation Department
  - Pond Village

- **Myanmar**
  - ⑧ National Water Supply
  - Pond Village

(Info from February 2010)
## Support by Public Institution

<table>
<thead>
<tr>
<th>Institution</th>
<th>Title of study</th>
<th>Site</th>
<th>Period</th>
<th>object</th>
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<tr>
<td><strong>UNDP</strong></td>
<td>Market Survey in Java Is.</td>
<td>Indonesia</td>
<td>2008/7-2008/9</td>
<td>Market Survey</td>
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<td><strong>NEDO (New Energy &amp; Technology Development Organization)</strong></td>
<td>Joint Study with the Can Tho University</td>
<td>Vietnam</td>
<td>2009/6-2010/2</td>
<td>Decision of final specification</td>
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<tr>
<td><strong>METI, (Jpn)</strong></td>
<td>Market Survey Kalimantan Is.</td>
<td>Indonesia</td>
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<td>Feasibility study</td>
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<tr>
<td><strong>METI, (Jpn)</strong></td>
<td>Operation Test in Sulawesi Is.</td>
<td>Indonesia</td>
<td>2010/8-2011/1</td>
<td>Adoption to the solar power generation</td>
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<tr>
<td><strong>JICA</strong></td>
<td>Study of preparation of Water Supply business in a village in West Africa</td>
<td>Senegal</td>
<td>2011/3-2012/10</td>
<td>Operation test with the system installed in Africa</td>
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<tr>
<td><strong>METI, (Jpn)</strong></td>
<td>FS of small water purification system in Côte d’Ivoire, Ghana</td>
<td>Côte d’Ivoire, Ghana</td>
<td>2012/7-2013/2</td>
<td>Feasibility study in Africa</td>
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<tr>
<td><strong>UNDP</strong></td>
<td>Market Survey</td>
<td>Mauritania</td>
<td>2013/3-2013/12</td>
<td>Market Survey</td>
</tr>
</tbody>
</table>
System Outline
System Outline

- Slow sand filtration system uses sand, gravel and microorganism
  
(No use of coagulants or membrane filters )

- Supplies 8000L of clean water in 1 day
Features

- Low running cost
  (No use of coagulants or membrane filters)
- Easy maintenance
  (No need an engineer with special technique)
Usage of clean water and effectiveness of system

- **Drinking**
- **Cooking**
- **Bath**
- **Dish Washing**

Number of households:

- **Decreasing Diarrhea**
- **Decreasing skin disease**
- **Decreasing stomach ache**
- **No impact**
- **Others**

Multiple answers
Installation site in Senegal 1/3

<Place> Ndiawdoune Nar Village

Ndiawdoune Nar village
(15 minutes from St. Louis by car)
Clean Water Supply System (solar power: option)

Charging mobile phone with solar power

Village people buy water

Clean water is available for the villager
Explanation in Senegal 3/3

Seminar to government officers, JICA, JETRO, NGO

Explain to villagers

Site check
Installation site in Mauritania 1/2

**Place** Diawling National Park

Diawling National Park
(300km, 3.5 hours from Nouackchott by car)

Signboard of Diawling National Park

System with solar power
Clean Water Supply System & Drip Irrigation System in Mauritania 2/2

Overview of Clean Water Supply System

Introduction of Drip Irrigation System
Business scheme and sample
Business Model

**Donor**
- Global Bank (World Bank, AfDB, ADB)
- National Aid (JICA, USAID, DFID, GTZ)
- Donation

**Purchaser**
- Government (National / Local)
- Bureau of waterworks
- NGOs (International / Local)
- Rotary club / Lions club
- Company (Government-owned, private)

**User**
- Village
- Hospital
- School
Public water company’s scheme

◆ Install the area where the piped water is not available
◆ Acceptance by central or local government
◆ Control/ Maintenance by public water company after installation

Public water company
Public works

Governor
Local government
Council

Site
Village
School
Clinic

Apply / Acceptance

YAMAHA
Sales
Small fund scheme

◆ One package: USD 100,000-, USD 5,000- by one donor, Total 20 donors

**Donor**
- Bank
- Trading company
- Motors

**Management**
- International NGO
- Local NGO

**Recipient**
- YCW-008
  - Yamaha Motor

**Support the villagers by income**
- ① children
- ② women

**Local committee**

**Education**

**Install**

**Donation**
- Recruit the donor

**Payment**
- Contract
Business in African countries

- **Installed**
  - Mauritania: 1
  - Senegal: 1

- **Installation plan in 2014**
  - Ivory coast: 1
  - Ghana: 1
  - Benin: 1

- **Under survey**
  - Liberia
  - Angola
  - Mozambique
  - Tanzania
  - Senegal

- **Distributor**
- **Local manufacturing of FRP tank**
- **Local supplier**
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Conclusion
Integration of business

**1) Clean Water Supply System**
- ① Get clean water (improve hygiene)
- ② Selling water (increase income)
- ③ Ice (storage) (added value)

**2) Solar Power System**
- ① Lighting/ power (improve lifestyle)
- ② Electricity for mobile phone (increase income)
- ③ Electricity for Battery (added value)

**3) Drip Irrigation System**
- ① Cost efficient/ Increase productivity (improve lifestyle)
- ② Increase the crops (increase income)
- ③ Establish a new business (added value)
Vulnerability in climate change
- The upward tendency of maximum temperature and the downward tendency of the rain-fall
- Frequent occurrence of drought and flood.
- Expand the drought area.

The increasing social problems by climate change
- Agriculture is the main business in African countries however conventional rain-fed agriculture face serious problem.
  - Decreasing the rain-fall affect directly the daily life
  - Quality of water worsen according to the flood and local peoples suffer diarrhea and malaria.

Business environment
- There is a big demand for agriculture, water and fishery.
Message to start BOP Business

- It will take time until business gets rolling well

- Business will start smoothly when you make partnership with public / International institution, NGO and NPO

- When you develop the niche market, you acquire much more business chance and profit, even first approach is tough.

- Focus not only BOP business but also MOP one. If possible, approach both BOP business and MOP one parallel.

- Exploit the official institution’s support
Thank you very much!