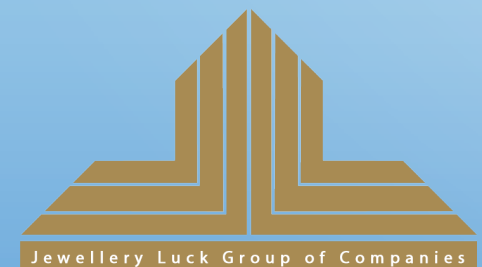




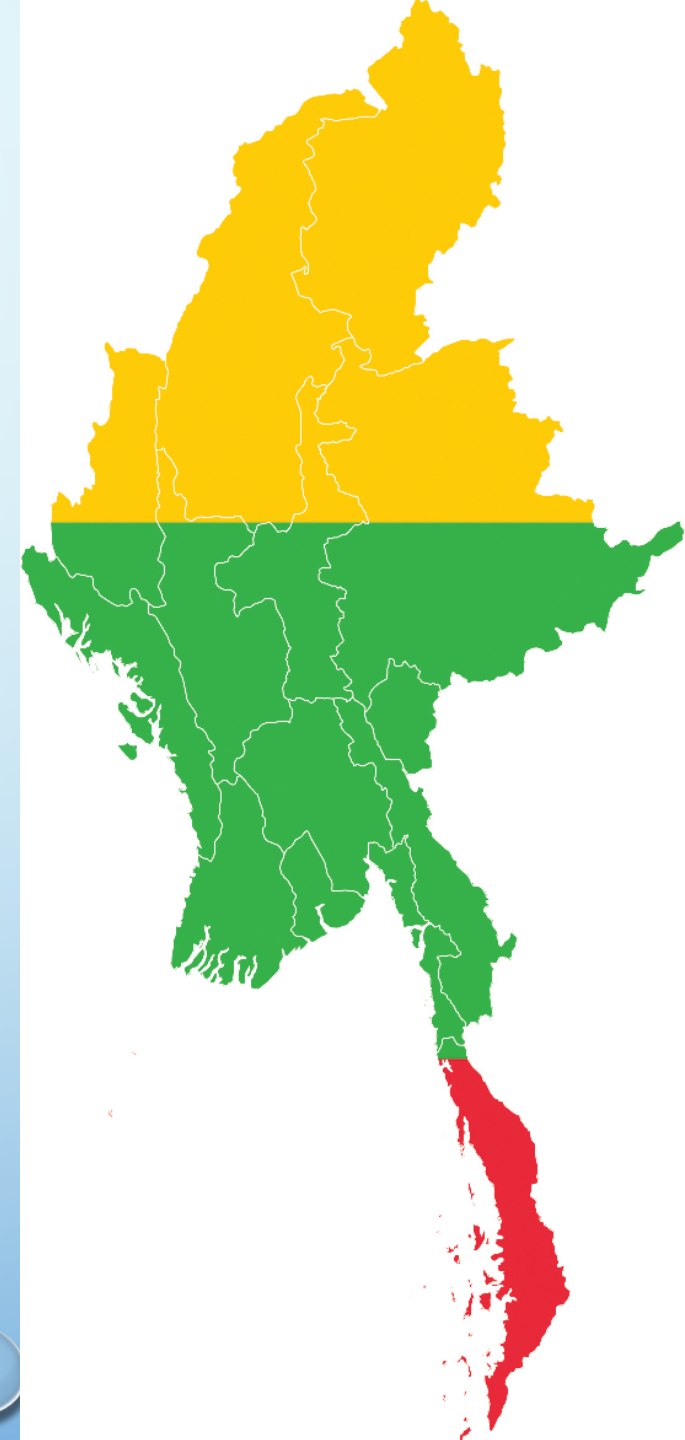
MYANMAR WORLD WATER DAY 2017



TIN TUN OO
Vice Chairman
Naypyidaw, 14th March 2017

FOR OUR COUNTRY, WE ARE THE WORLD

- Giving back to the community and to our sustainable future



UNITY, STABILITY AND DEVELOPMENT

- True happiness goes along peace and sustainability



- Sustainable Development Goals







JL FOUNDATION

ကံကောင်းခြင်းရတနာ ပညာရေးပေောင်စေးရှမ်း



**MARGA
COMMUNITY
CARE**



WATER STEWARDSHIP

- First and the only company in Myanmar which have obtained FSC (forest stewardship council)
- To promote responsible use of water



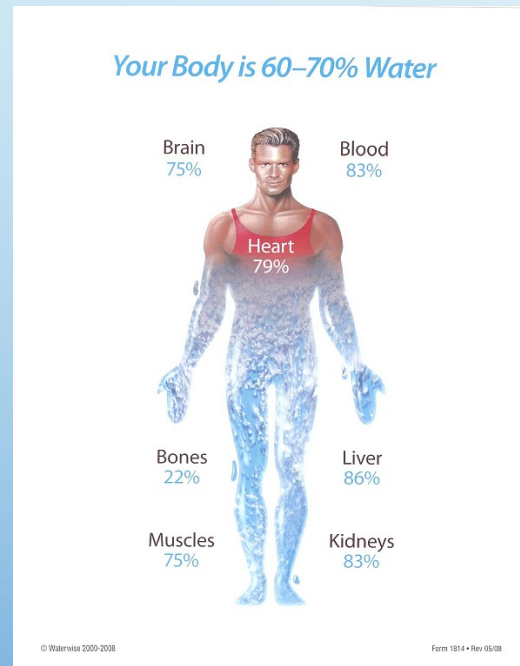
PPP

- Public Private Partnership
- Solves government budgetary issue
- Social benefits
- Promotes country's economic growth
- “Optimal lifecycle costing” approach instead of the “lowest capital cost” approach
- Socio-economic and financial feasibility



WATER

- Human body consist of 60-70% water
- Used for cooking and irrigation
- Food security



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Water-saving tech, veg gardens grow hope in Myanmar's Dry Zone

PAKOKKU — Myo Myint fondly remembers when his one-acre farm regularly produced 100 baskets of rice. But as rainfall became erratic in this arid region, he started growing betel leaves, a less thirsty cash crop.

This summer, the 50-year-old is considering leaving fallow his land in Myanmar's central "Dry Zone" because when the stream behind his house dries up in March, the cost of irrigation outstrips the income from any crop.

A 2016 drought followed by heavy rains already battered his farm.

"Water is becoming more scarce every year. I want to keep growing the crops but there's not much I can do without water," he said, sitting beneath the ground floor of his stilt house.

His village of Myay Ni Twin, in Pakokku township, is around two hours' drive from Bagan, Myanmar's top tourist destination known for its ancient Buddhist temples.

"When I was growing up, the stream didn't go dry. Now there's less rain, and it's very hard to plant things," he said.

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Thein Htay, 49, with his 17-foot by 24-foot greenhouse at the back of his home in in Shwe Bon Thar village, Myingyan Township, part of the Dry Zone. He uses drip irrigation to grow mustard leaves, kailan, lettuce, eggplants and carrots. PHOTO: THOMSON REUTERS FOUNDATION / THIN LEI WIN

UPDJC committees conclude discussions

Union Government announces official Thinvann public holidays

Water-saving tech, veg gardens grow hope in Myanmar's Dry Zone

>> FROM PAGE 1

Myanmar recently emerged from decades of military dictatorship only to face a bigger existential threat.

The Southeast Asian nation of 50 million people is the world's second most vulnerable country to climate change, according to the Global Climate Risk Index from research group Germanwatch. Studies have shown the onset of the monsoon is becoming more variable, increasing the risk of drought.

The Dry Zone, an area comprising 58 townships in Mandalay, Magwe and Sagaing, is home to around 10 million people, who mostly rely on rain-fed agriculture. It suffers from year-round water shortages.

A recent assessment by the Myanmar Climate Change Alliance (MCCA), an initiative funded by the European Union and United Nations, predicted a temperature increase of up to 3 degrees Celsius and a shorter monsoon in Pakokku by 2050.

Farmers like Myo Myint — already struggling to

make ends meet — will bear the brunt of those changes.

His village has a well, but pumping water costs too much, he said. So he was intrigued by the prototypes of soil moisture sensors in the hands of Tayzar Lin, a product designer with Proximity Designs, a Myanmar-based social enterprise that develops affordable products for farmers.

"I've been curious since I saw something similar on Facebook," said the farmer, as Tayzar Lin plunged into the soil a boxy contraption with a dial at the top and an alloy-tipped brass rod at the bottom. The hand on the dial moved to green, showing the soil still held water. Red means dry, and blue means too much water.

Myo Myint dreams of watering only when needed, instead of every two days as he now does, to save the precious resource.

WASTED WATER

Agriculture — including livestock, fisheries and forestry — contributes nearly 40 per cent of Myanmar's GDP and employs around half its workforce, according to

Andrew Kirkwood, director of the Livelihoods and Food Security Trust Fund (LIFT), a poverty reduction fund supported by 12 governments.

"Agriculture is extremely important to Myanmar's economy and future growth," he said.

A 2013 study funded by LIFT identified the Dry Zone as Myanmar's most water-stressed region and one of its most food-insecure areas. Inexpensive water sensors made abroad are already available, but their instructions are in English and they are not widely used, nor calibrated by soil type.

Proximity Designs' sensor works with loam and clay, and its staff will train farmers to use it properly, the firm said.

The device — expected to retail at an affordable price of around Ks30,000 (\$22) — is now being tested in three Dry Zone townships, said Proximity's user research manager Louisa-Jane Richards. A study of growers of flowers, vegetables and betel — a mild stimulant that is chewed — found they were over-irrigating by around 30

per cent, she said.

Cutting that to 15 per cent could save a farmer with 0.5 acres (0.2 hectares) around 170 gallons of water a season.

HOME GARDENS

Families in the Dry Zone are also getting help to grow nutritious food in gardens using drip irrigation and hydroponics. Non-profit Terre des Hommes (TdH) Italy has set these up in 45 villages with funding from LIFT.

Shwe Bon Thar, a dusty village in Myingyan township, shares a pond with five other villages. But when its water disappears in the dry season, locals must rely on acidic well water and fresh vegetables become pricey.

Maung Maung, 46, now makes Ks1,000 a day selling mint from the hydroponic garden behind his house, a 3-metre by 2-metre plot of vivid green surrounded by sandy soil. The gravity-fed system irrigates leafy vegetables in discarded water bottles while leftover water collected at the bottom is recycled.

Maung Maung, who

uses about 5 gallons of water a day, also grows mustard leaves, morning glory and lettuce, which go into the family meal.

"We used to eat vegetables only when we could afford it, about three times a week. Now we eat fresh, pesticide-free vegetables every day," he said.

The extra income from selling his surplus produce will help in the coming dry months. Like many villagers, his main crop is pigeon pea, whose price has plummeted this year.

SYSTEM-WIDE SHIFT

Beyond immediate food and water needs, the Dry Zone is also experiencing dramatic shifts.

In many villages, most farmers are in their forties and fifties, as young people have left. Maung Maung's three adult children work at factories in Mandalay, Myanmar's second-biggest city.

Pasquale Capizzi, MCCA's chief technical advisor, said Myanmar needed to tackle both immediate natural disasters and the more gradual impacts of climate change.

"Response ... must involve society as a whole", encompassing local and national government, businesses, communities and civil society, he said.

"You must adapt with different crops, different agricultural techniques, different mechanisation and productivity improvement — but in some areas you may have to be prepared to learn another trade," he said.

Climate change will intensify risks such as cyclones, floods and droughts, he added, but will also have "silent effects" on soil salinity, health and yields.

People's efforts to adapt, said Capizzi, must be supported to reinforce "the innate resilience of communities not to accept fate, but to bounce back and improve".

(Reporting By Thin Lei Win, editing by Megan Rowling; Please credit the Thomson Reuters Foundation, the charitable arm of Thomson Reuters, that covers humanitarian news, climate change, resilience, women's rights, trafficking and property rights. Visit <http://news.trust.org/>)

- Quote: "Agriculture — including livestock, fisheries and forestry — contributes nearly 40 per cent of Myanmar's GDP and employs around half its workforce, according to Andrew Kirkwood, director of the Livelihoods and Food Security Trust Fund (LIFT)..."

CLAIM'S DAY NOTICE



FARMERS DEVELOPMENT BANK

- VISION

Implement prosperous future and enhance social economy of farmers.

- Mission

Transformation of sustainable economy and steady finance/income for farmers and grassroots community.

- Value

Beneficial impact of finance support for rural development and reduction in poverty according to Government Institution.

YANKIN TOWNSHIP



Yangon City Water Supply System

Supply Sources

Hlawga Reservoir (1904)	14MGD
Gyobu Reservoir (1940)	27MGD
Phugyi Reservoir (1992)	54MGD
Ngamoeyeik Reservoir (2005)	45MGD (1 st Phase)
Groundwater sources	20MGD
Total supply capacity (2013)	160MGD

Demand Site (Yangon City)

Population	5.14 million (2013)
Daily water use	30 gpcd (imp. gallons/cap/day)

Daily water demand 154MGD

Connections	269,268 connections (2013) 90%(domestic), 8%(commercial), 1% (departmental), 1%(FOC)
Demand coverage	approx. 30% (2013)
Non-revenue water	approx. 66% (2013)
Pricing System	Fixed price per unit
Water Price	0.11 USD per m ³ (commercial) 0.08 USD per m ³ (domestic)

Service level target of YCWSS

Performance Indicators	Target Year		
	2013	2025	2040
Non-revenue water (%)	66	35	15
Leakage rate (%)	50	25	10
Demand coverage (%)	35	60	80
Water consumption (gpcd)	30	35	40
Supply Pressure (bar)	0.75	> 1.5	
Supply duration (hour)	8hrs.	24hrs.	
Water quality	Non-drinkable	Drinkable	

Ongoing and Proposed Future Projects of YCWSS

Project	Supply capacity & Start-up year
Ngamoeyeik 2 nd Phase	45MGD ('14)
Lagunpyin Reservoir	40MGD ('15)
Kokkowa River (240MGD)	15MGD ('20) + 45 MGD ('25) + 60MGD ('30) + 120MGD ('40)
Toe River (180MGD)	15MGD ('25) + 15MGD ('30) + 30MGD ('35) + 120MGD ('40)

River Source:

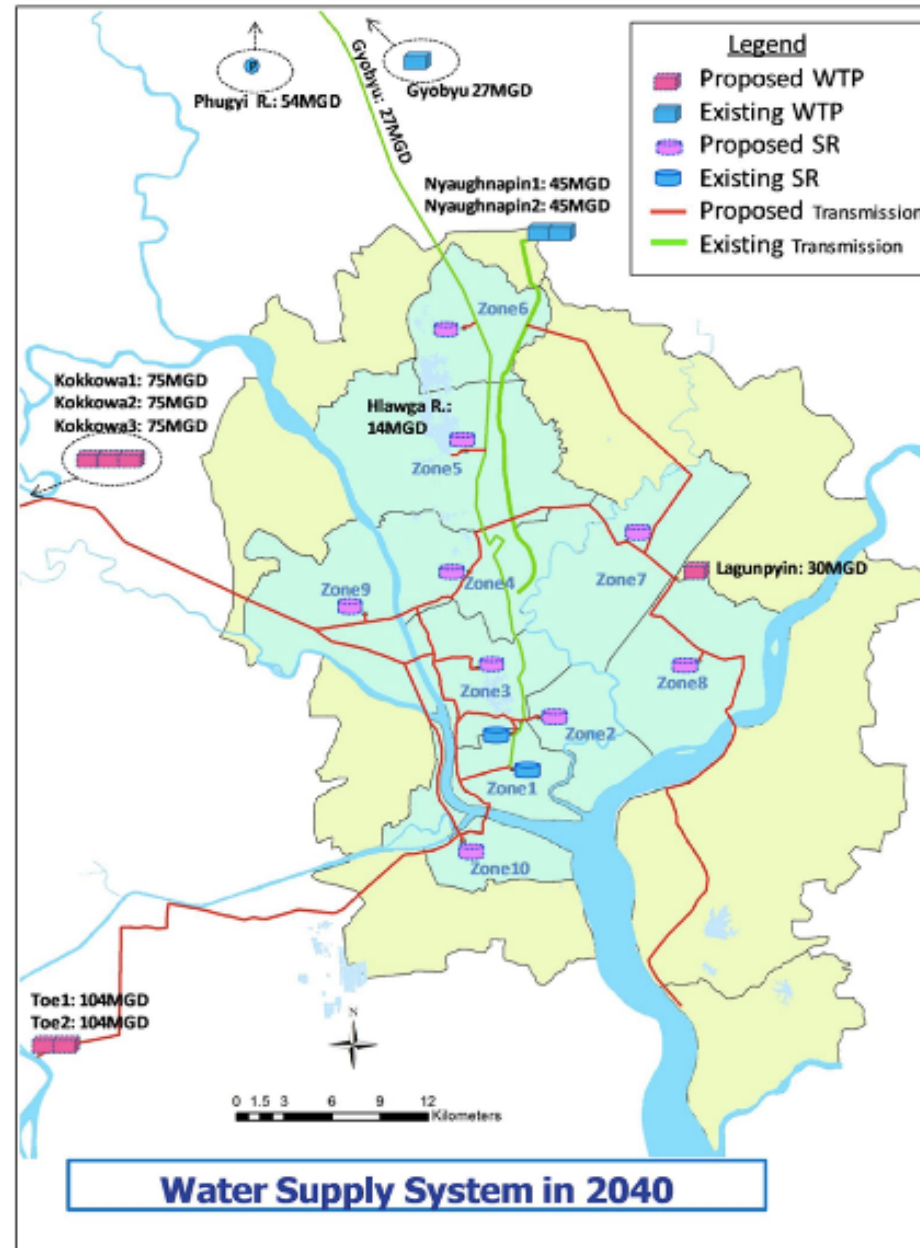
- 1. Kokkowa River**
- 2. Toe River**

WTP:

- 1. Gyobyu**
- 2. Nyaughnapin 1 & 2**
- 3. Lagunpyin**
- 4. Kokkowa**
- 5. Toe**

Ground water:

0 in 2040



KEY POINTS

- Unity is Strength, Together everything is Possible
- Packaging of Public Private Partnership

