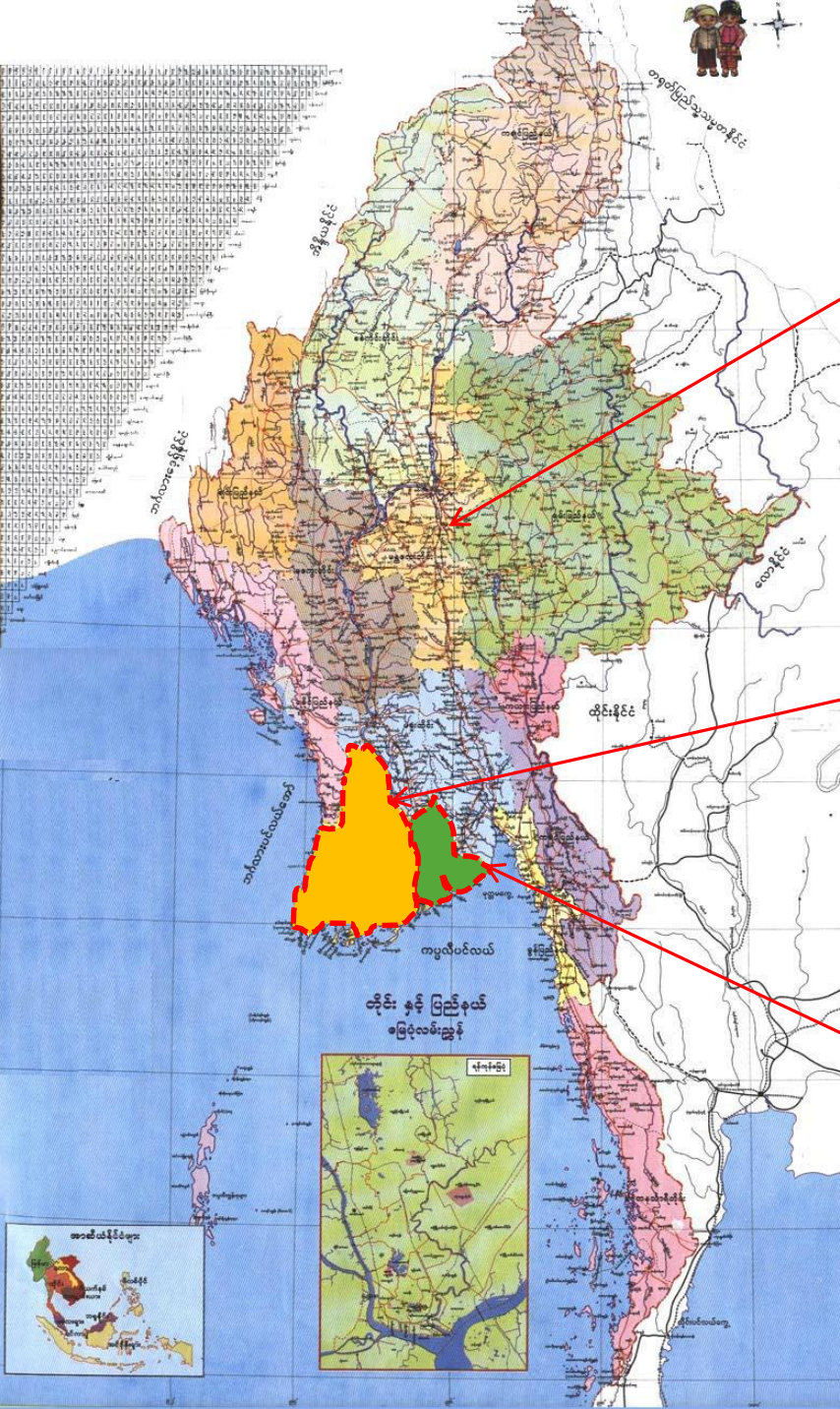




# **Integrated Water System Development Exemplified by PanHlaing River Rehabilitation Project**

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**Country Myanmar**  
Area : 676,577 Sq-Km  
Population : 51,419,420

**Ayeyarwady Region**  
Area : 35,032 Sq-Km  
Population : 6,175,123

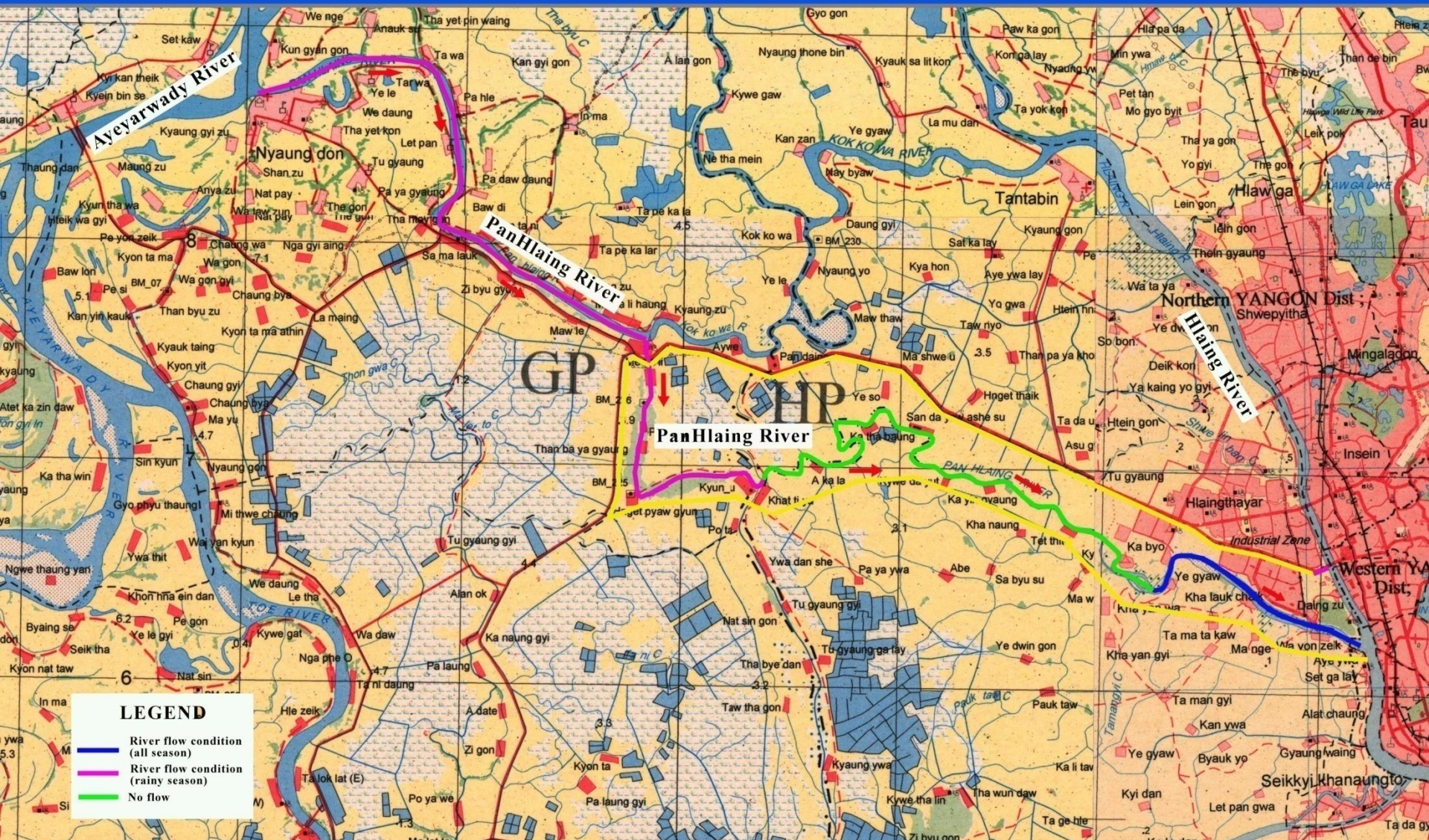
**Yangon Region**  
Area : 10,170 Sq-Km  
Population : 7,355,075

## □ *Background Information*

- PanHlaing River is one of the main tributaries of Ayeyarwady River and flows into Hlaing River near the Yangon City.
- The main function of PanHlaing River is contributed as drainage channel in flood season and also used for navigation all year round.
- In the past decades, functions of PanHlaing River is deviated due to siltation in the main course.
- The length of PanHlaing River from junction with Kokkowa River to the mouth is about 34 miles (54.7 km) and it can use only 10 miles (16.1 km) for navigation at present.
- Rehabilitation (Re-excavation) Project will be initiated and setup the plan for development of PanHlaing River including its surrounding.
- PanHlaing Sluice Gates construction is one of the infrastructures development.



# Location of PanHlaing River (Ayeyarwady River - Hlaing River)



Total length of PanHlaing River to be rehabilitated (re-excavated): 54.7 km







## □ Objectives of the Project

- To achieve the original channel morphology of PanHlaing River especially in the manner of drainage purpose and navigation
- To supply the fresh water for agricultural development scheme and Industrial zone
- To prevent the sea water intrusion (saline water) and siltation problem
- To establish the agricultural production zone targeted for rural area development



Proposed Alignment of Sluice Gate



PanHlaing River at the junction with Kokkowa River  
(R.D-0+000')



PanHlaing River at Mazali Bridge (R.D-2+800')

## □ Investigation Works Undertaken

Topographic Area Survey

Hydrological Investigation & Analysis

Geological Investigation

Socio-economic Survey

## □ Rehabilitation Works Undertaken

Construction (9) - RD 0+000 to RD 46+000

Construction (1) - RD 46+000 to RD 90+000

Construction (9) - RD 90+000 to RD 120+000

Construction (1) - RD 120+000 to RD 145+000

Yangon Region O&M Branch - RD 145+000 to  
RD 181+500

View of PanHlaing River in dry season (R.D-25+000')



Highway bridge crossing PanHlaing River (R.D-150+600')



Silt deposition in PanHlaing River at U/S of highway bridge (Low tide)





## ❑ Benefits of the Project (For Agriculture)

Total Flood Protected Land Area 48,065 hectares

Total Flood Protected Crop Area 44,778 hectares

### In Ayeyarwady Region

#### NyaungDon Township

- Flood Protected Land Area 7,614 hectares

- Flood Protected Crop Area 6,096 hectares

### In Yangon Region

#### TwanTe Township

- Flood Protected Land Area 30,623 hectares

- Flood Protected Crop Area 30,212 hectares

#### HtanTabin Township

- Flood Protected Land Area 9,828 hectares

- Flood Protected Crop Area 8,470 hectares

Low flow condition of PanHlaing River (R.D-5+000')



Minimum flow condition of summer season (R.D-10+000')



Minimum flow condition of summer season (R.D-19+000')





# Ayeyarwady Region, Length = 7.52 miles



**PanHlaing River at 2003,  
near Khat thi ya sluice gate,  
RD 35+000**



**Mya Ge sluice gate,  
RD 46+000**

**PanHlaing River at 2014,  
near Khat thi ya sluice gate**



# Yangon Region, Length = 26.6 miles



**PanHlaing River at 2003**

**Sandayaw sluice gate**

**Drain out water to PanHlaing River**



**PanHlaing River at 2014**

**Sandayaw sluice gate**

**Drain out water to PanHlaing River**



# PanHlaing River Rehabilitation Works

Before



During Construction



After



PanHlaing River at RD 0+000



PanHlaing River at RD 26+000



# PanHlaing River Rehabilitation Works

Before



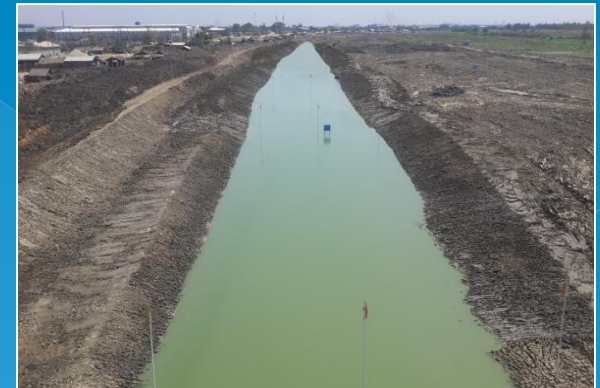
During Construction



After



PanHlaing River at RD 139+000 To RD 140+000



PanHlaing River at RD 145+000 To RD 160+695



# PanHlaing River Rehabilitation Works

Before



During Construction



After



PanHlaing River, Temporary Dyke at RD 158+000



PanHlaing River, Temporary Dyke at RD 174+750



# PanHlaing River Rehabilitation Works



**RD 8+000 to RD 10+000  
Embankment / Gangar Road way**



**RD 10+000  
Than payar creek sluice**



**RD 56+000  
Mingalar sluice gate**



**RD 58+000  
Kha Naung Paw and Lay Ein Su  
Village Bridge**



**RD 67+000  
Outlet**



**RD 78+150  
Culvert**





**PanHlaing River Rehabilitation Work at  
Confluence of Kokkowa River and PanHlaing River (RD 0+000)**





**PanHlaing River Rehabilitation Work at RD 46+000 to RD 50+000**





**PanHlaing River Rehabilitation Work at RD 145+000**





**Temporary Dyke Construction at RD 175+000**

## ❑ **Conclusions**

- Irrigation Water Supply, Drainage and Flood Protection for Land and Crop Areas
- Fresh Water Supply for Possible Expansion of the Urbanized Area of Yangon City
- Navigation
- Better Socio-economic, Trading and Transportation Conditions for Local Rural Communities





*Thank You for Your Kind Attention*



*From You*