

# Irrigation Performance Assessment and Benchmarking in Sri Lanka



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Eng. H M Jayatillake, Deputy Director  
(Irrigation Management)  
Irrigation Department, Sri Lanka.



# Irrigation in Sri Lanka – General Country Context

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- Total Irrigated Extent 560,000ha
- Major Irrigation Schemes(>80ha) 390,000ha  
Jointly Managed
- Minor Irrigation Schemes( $\leq$ 80ha) 170,000ha  
Farmer Managed



# Agencies

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- Irrigation Department 257,000 ha
- Mahaweli Authority of Sri Lanka 95,000 ha
- Provincial Councils 38,000 ha
- Department of Agrarian Development  
Oversee farmer manage minor irrigation schemes



# General Country Context *Cont*

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- Economy

Per capita GNP	US\$ 837
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GDP Growth Rate (2000)	6%
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GDP- Agriculture	18%
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Rural Population	~ 50-60%
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Employment in Agriculture	40%
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*Rural Economy is basically Agricultural*



# Challenges

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- Competing Demands
- Food for additional Population
- 18.5 Million to 23 million in 2025
- Food Production from Irrigated Agriculture to increase from 50-60% to 80%
- ...



# Performance Improvement

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- Essential
- Performance assessment to proceed
- A new performance Assessment programme started in 1997



# Performance Assessment

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- Simple but Effective Indicators
- Based on
  - Availability of Data
  - Potential for interventions for improvement
  - Overall Effectiveness of Indicators
  - Availability of Resources
  - Gradual Expansion



# Gradual Expansion

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- 1997 – 9 Schemes
- 1988/99 – 55 Schemes
- 1999/2000 – 95 Schemes
- 2000 – 2001 - ~300 schemes with different intensity





# Main Focus

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- Identify Sore Thumb Schemes –

*Schemes where performance differs drastically from the comparable schemes.*



# Programme Components

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- Establishing & expansion of Data Collection network
- Training of Staff & Farmers
- Improvements in Data Transmission & Processing
- Improvement in Reporting Mechanism of Performance
- Institutional Improvements
- Internalizing (to some extent)



# Performance Indicators

Parameter	Indicator	Definition
Irrigation Supply/use	Length of irrigation season	Start to end of irrigation issues (Days)
	Irrigation duty	$\frac{\text{Irrigation supply}}{\text{Area irrigated}}$



# Performance Indicators

Parameter	Indicator	Definition
Cropping	Total Cropped Area	
	% Cropped Area	$\frac{\text{Cropped Area} \times 100}{\text{Gross Area}}$
	Annual Cropping Intensity	$\frac{\sum \text{Seasonal Cropped Areas}}{\text{Gross Area}}$
	Cropped Area by Crop	ha
	% Area by Crop	%
	Extent of Crop Failure	%
	% Crop Failure	%



# Performance Indicators

Parameter	Indicator	Definition
Productivity	Land Productivity (Rice)	Production per unit of land (t/ha)
	Water Productivity (Rice)	Production per unit irrigation supply (t/m <sup>3</sup> )



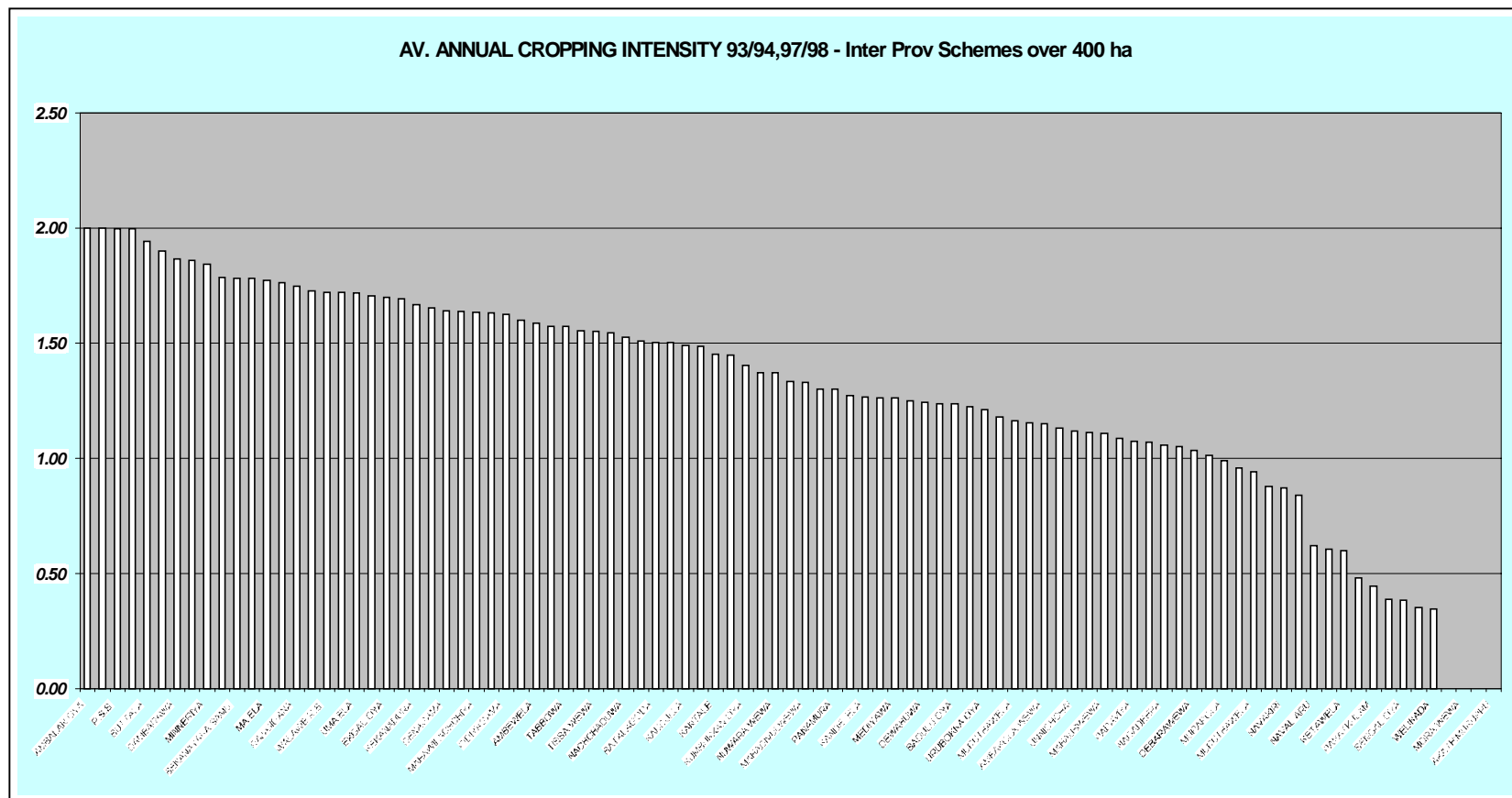
# Performance Assessment

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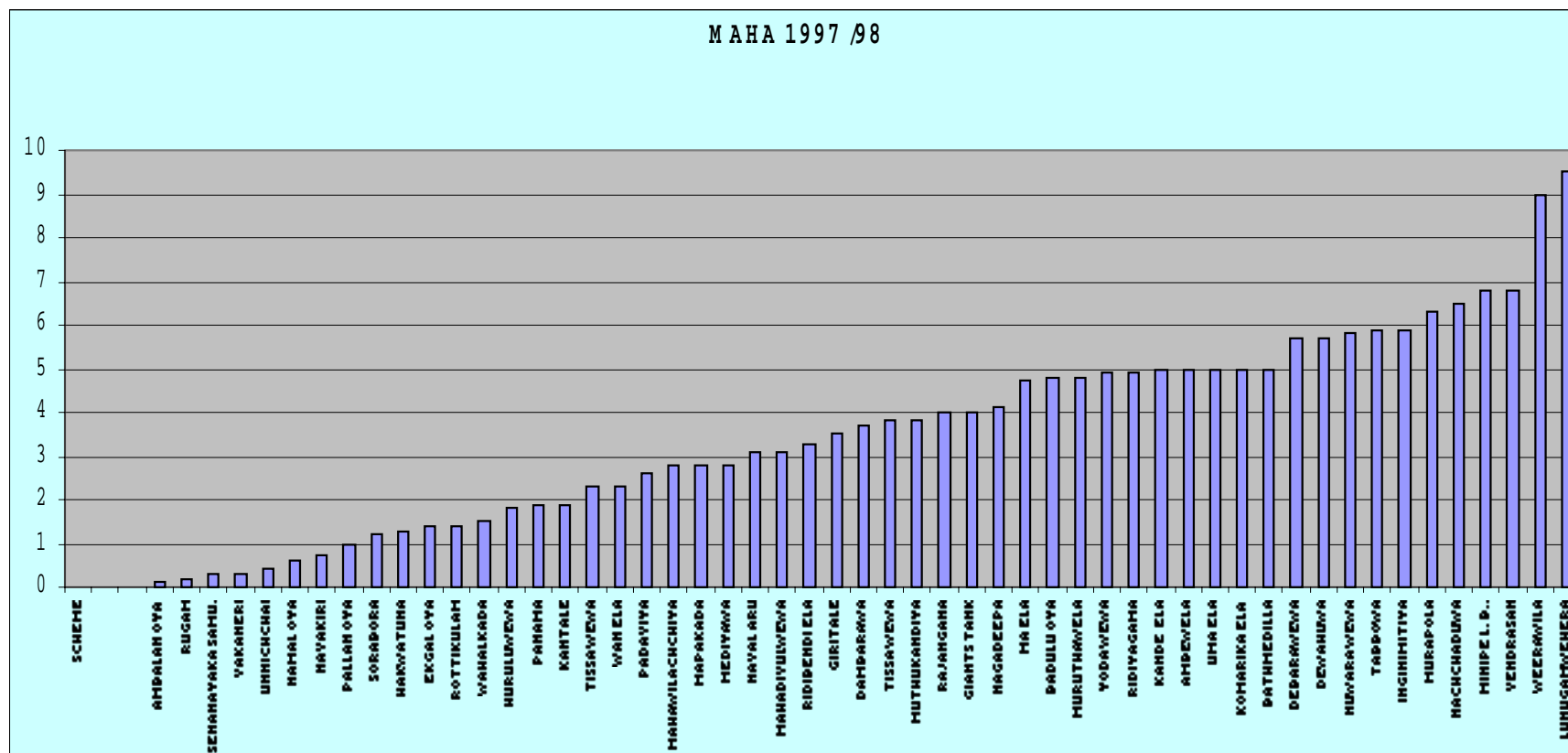
## Some Examples

# Identification of Areas for improvement

## Five Year Average Annual Cropping Intensities – Major Schemes 93/94 – 97/98

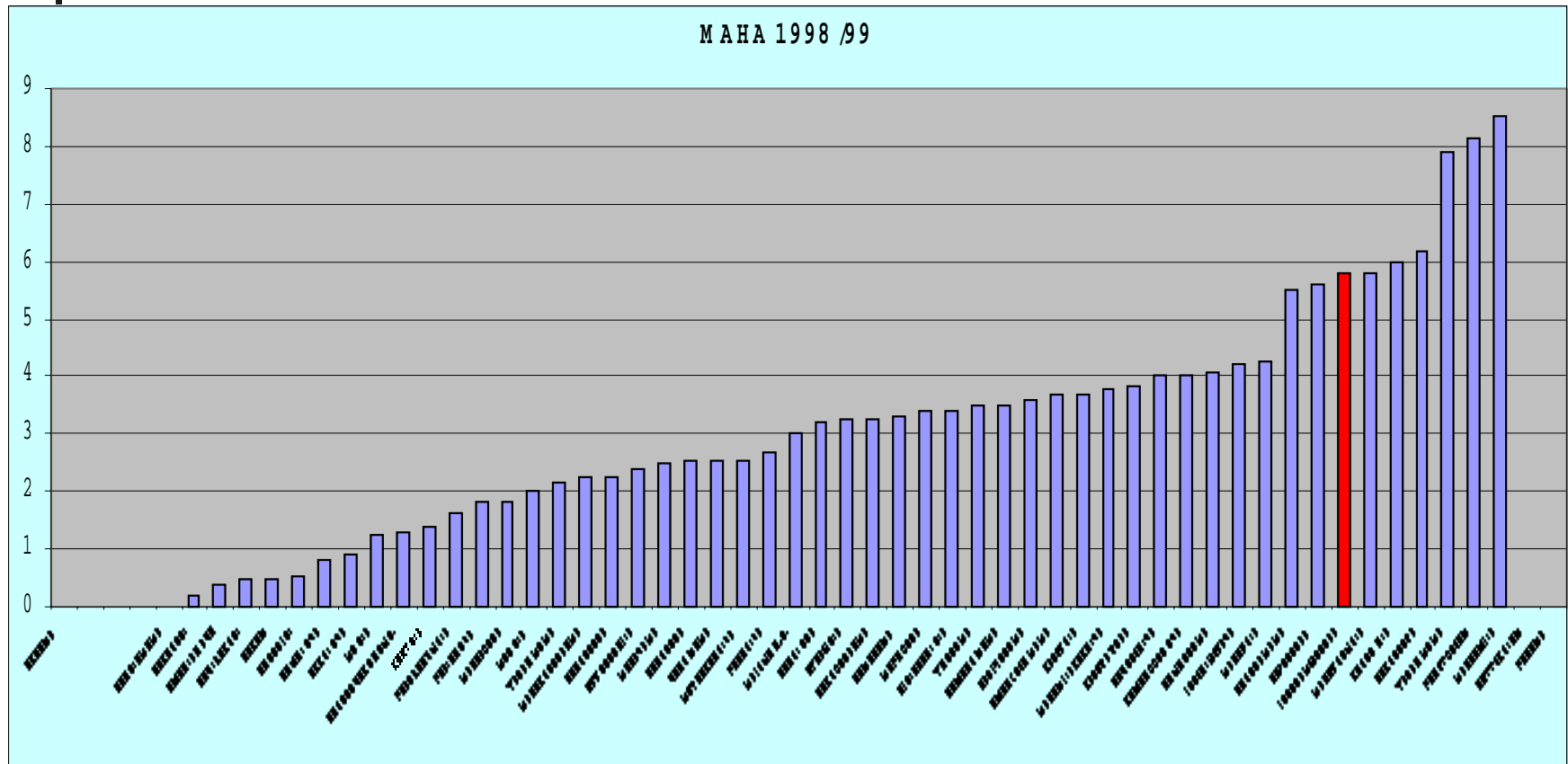


# Comparison of water Use Irrigation Duties – Maha 97/98





# Comparison of Water Use Irrigation Duties - Maha 98/99



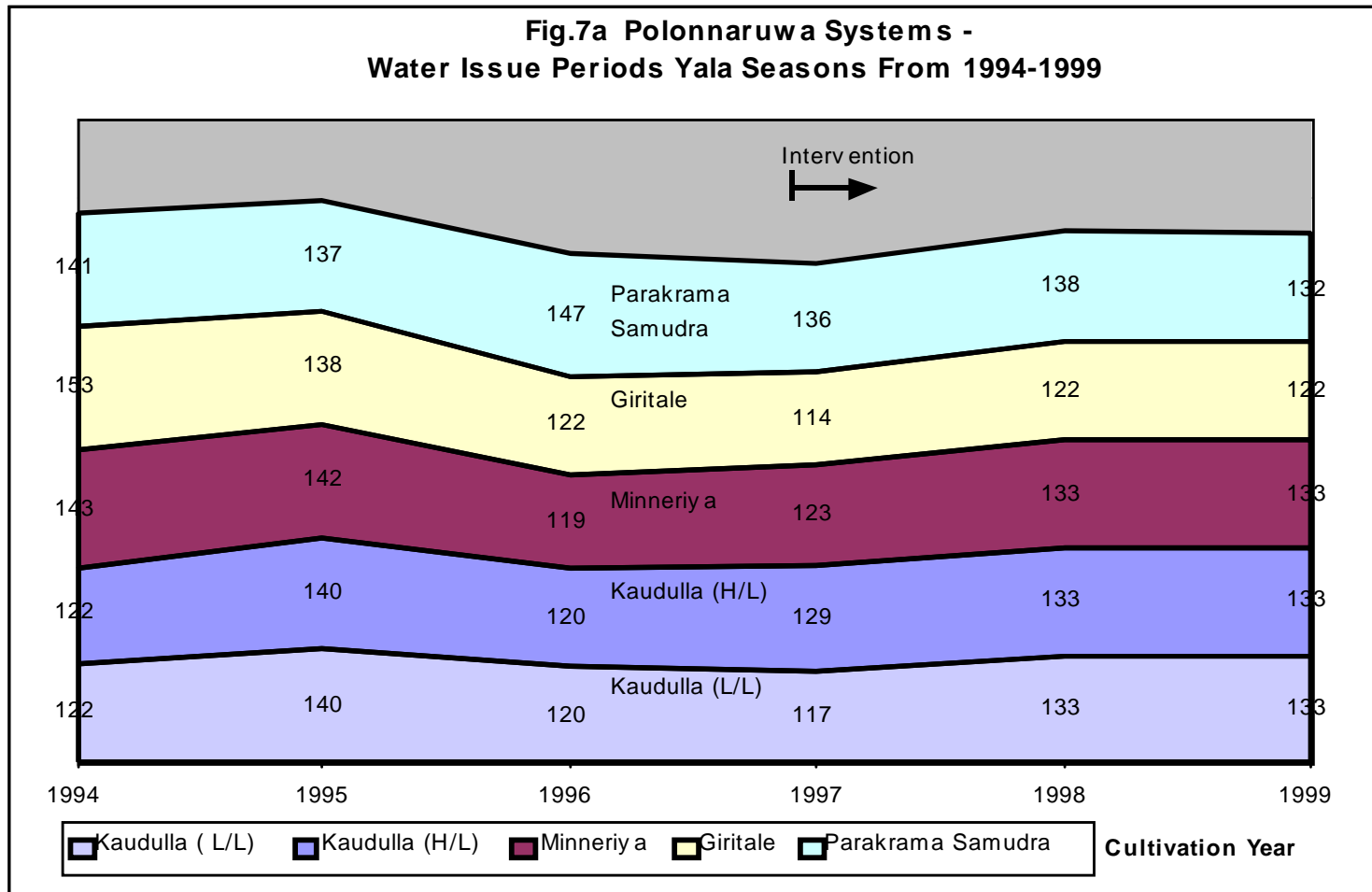


# Intervention

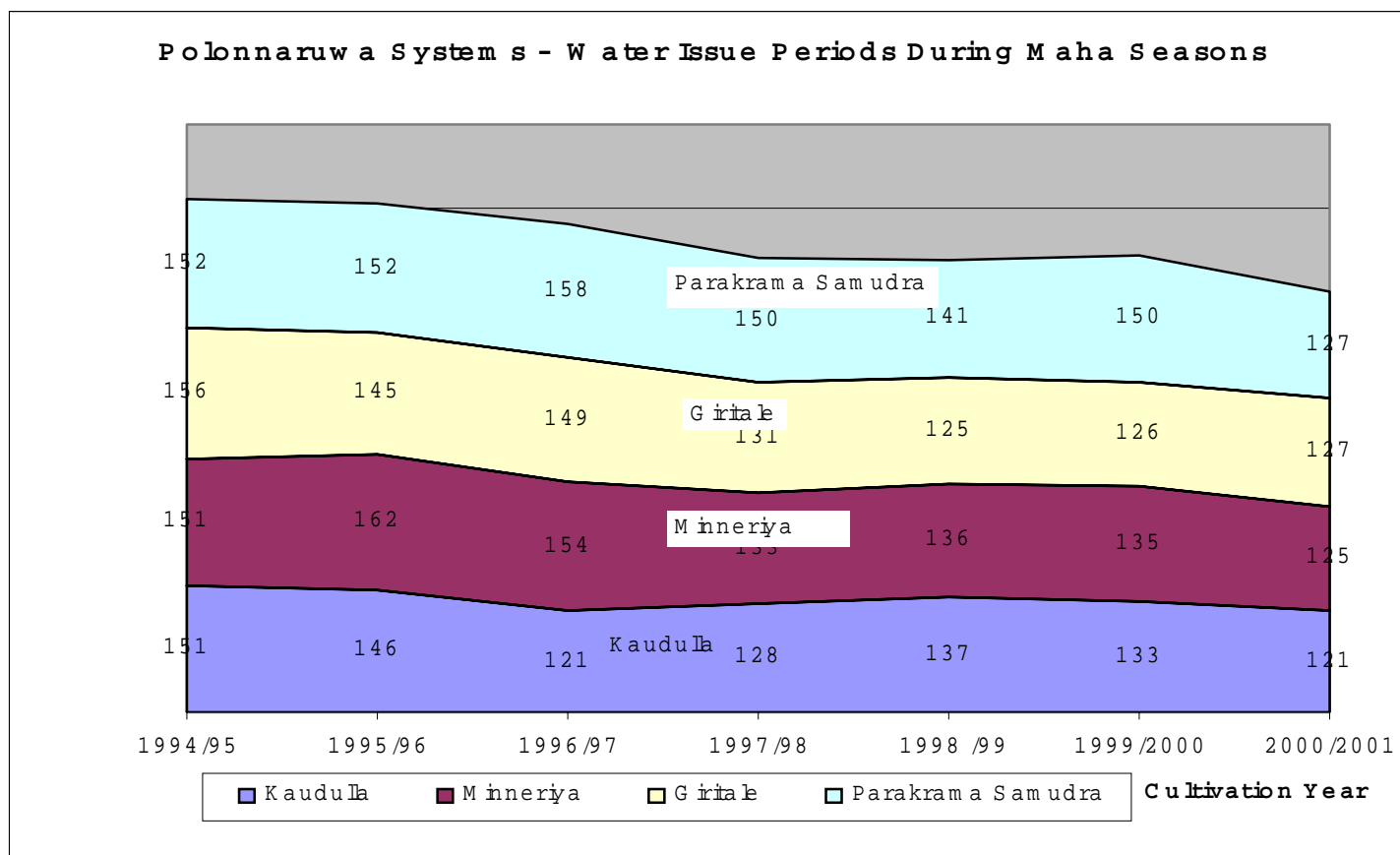
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- High Permeability
- Reduction of Seepage from Canal by shutting off Main Canal Two Days a Week

# Length of Irrigation Season - Yala

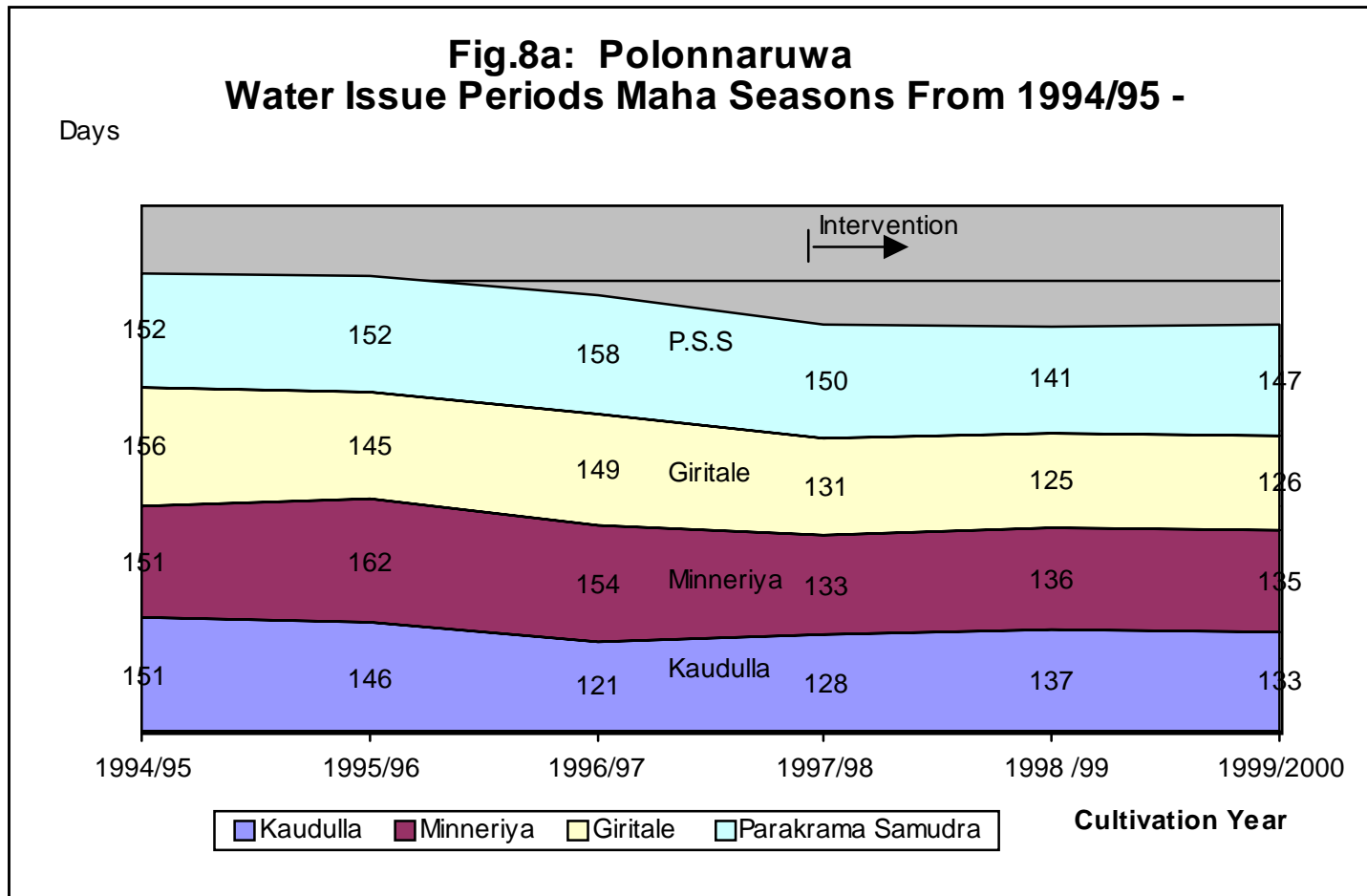


# Length of Irrigation season - Maha

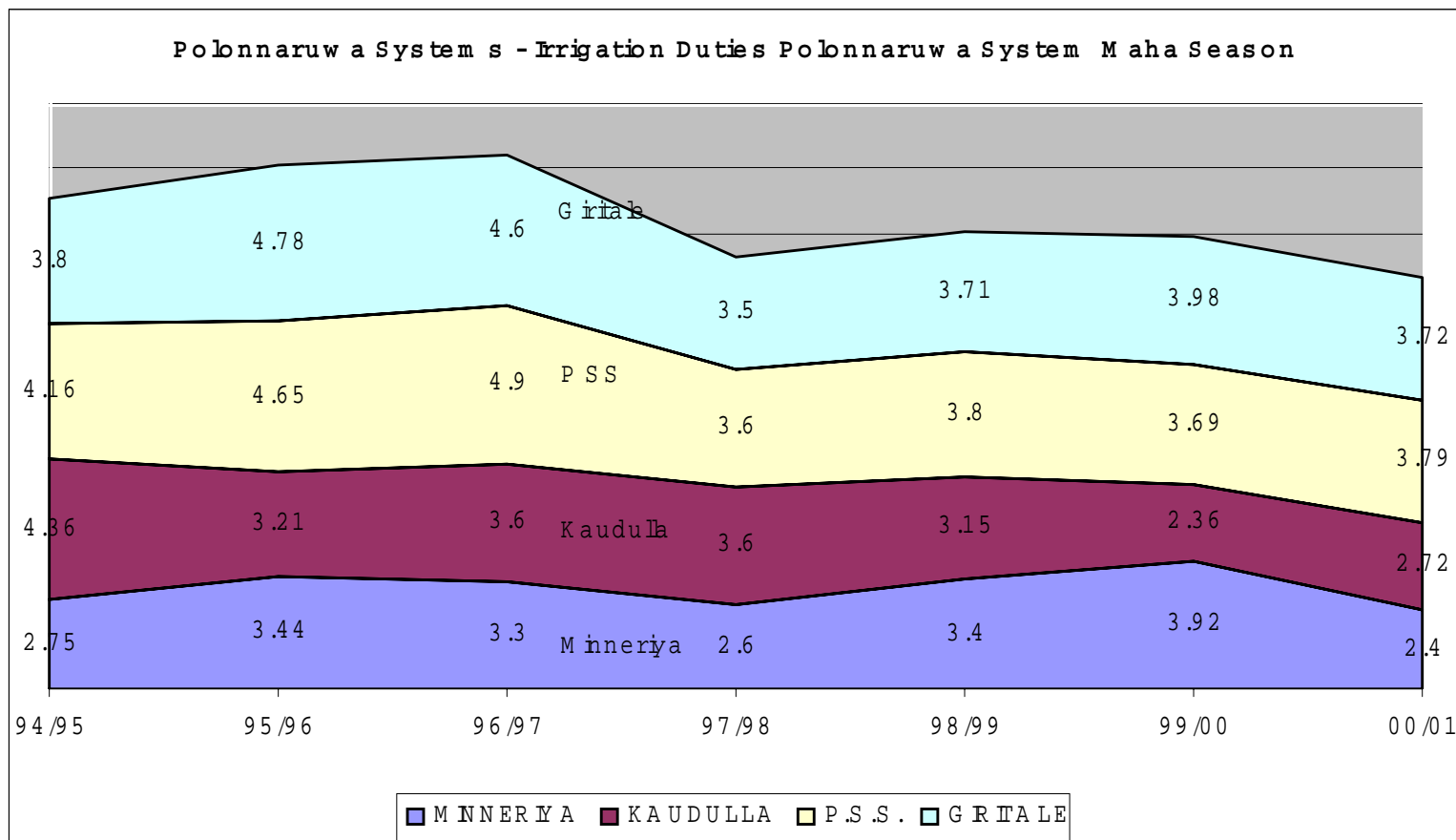


# Polonnaruwa Systems

## Length of Irrigation Season - Maha



# Water Use Polonnaruwa Systems (Ft)



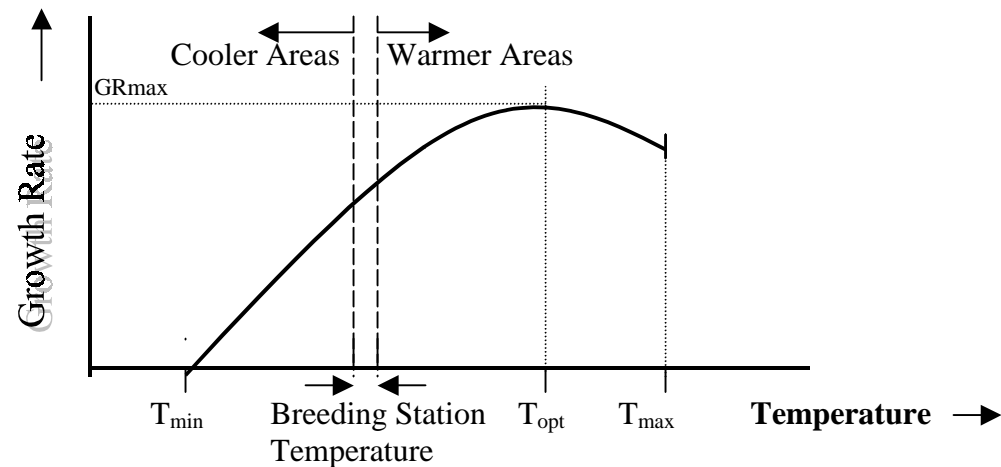


# Intervention

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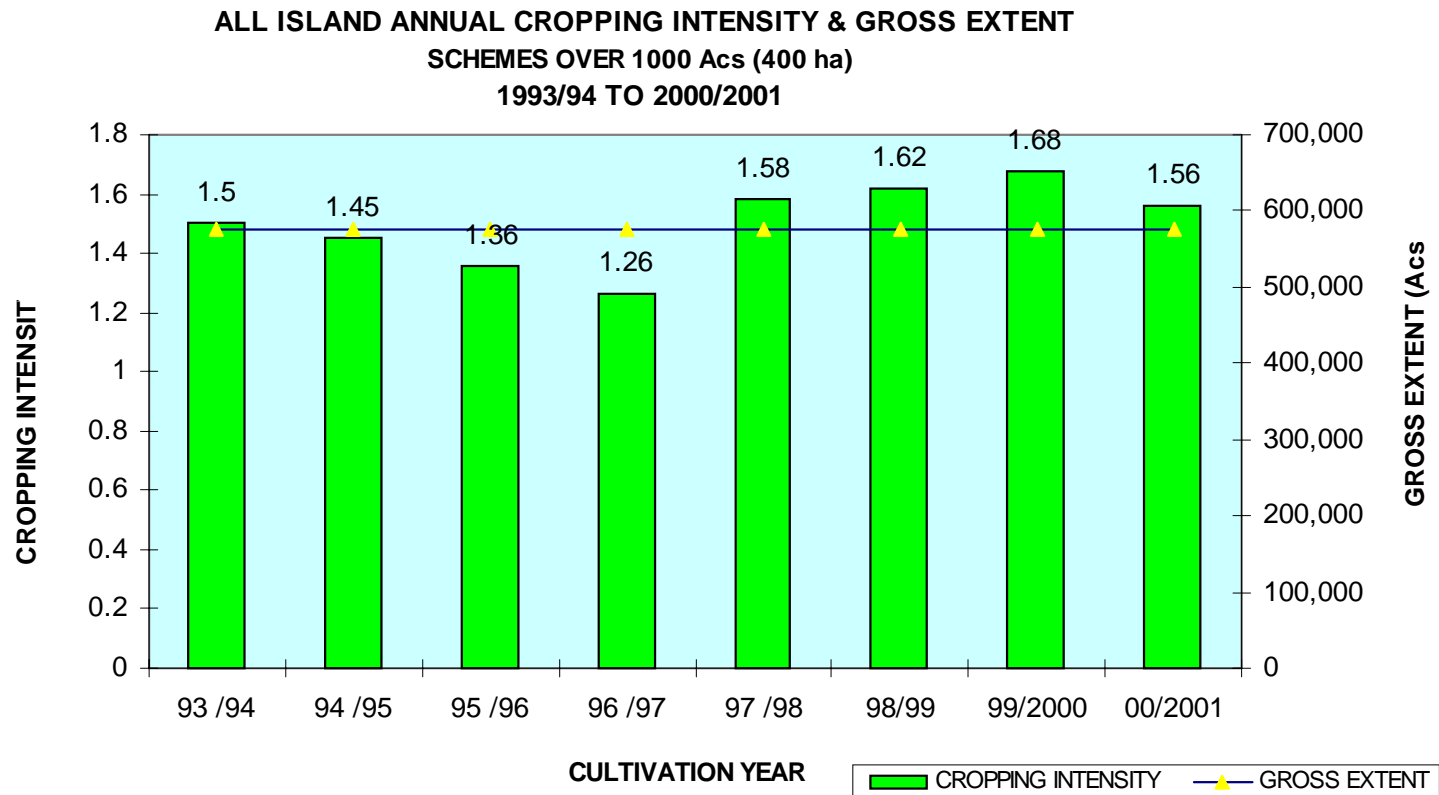
- Adoption of Temperature related Growth Period

# Growth Rate is Temperature Dependant.





# Cropping Intensity of Major Schemes - All Island



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## Bench Marking Initiative –

## Schemes included in the Evaluation Phase

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- Kirindi Oya–Lunugamwehera - 5160ha
  - Parakrama Samudra - 10200ha
  - Giritale - 3100ha
  - Minneriya - 10000ha
  - Kaudulla - 5100 ha
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- Over 35 Scheme Year available for comparison
  - Further schemes are being processed



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## Bench Marking Initiative - Benefits

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- Enable Expansion of Performance Assessment Programme
- Comparison with Other Schemes
- Increased number of indicators
- Ready Accessibility of information
- Interaction with wider Irrigation Community

# Web-based Bench Marking Platform – Experiences & Expectations



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- Viable Performance Assessment Tool
- Modified for Multiple Frame Down Load
- Offline Data Entry instead of Online Data entry
- Possibility of Multiple Level Use/ Information
- Seasonal Assessment instead of Annual Assessment
- User Defined Indicators



Thank You for Your Attention.

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