

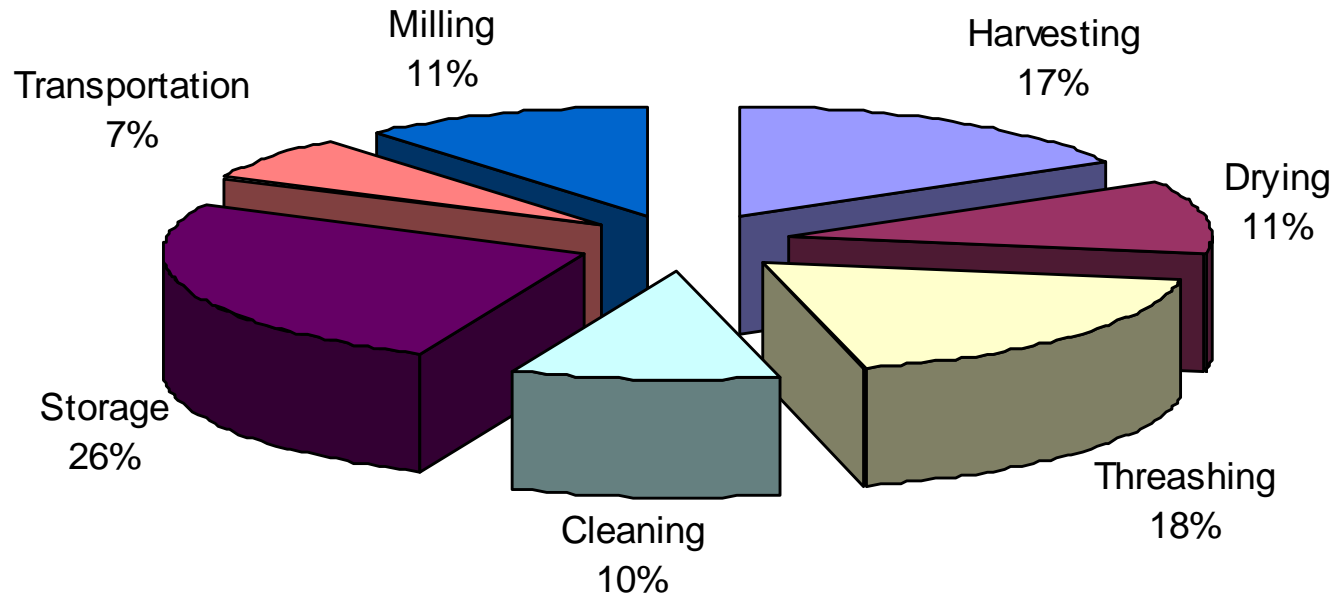
# Constraints & future development in rice processing



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# PROPOPTIONAL LOSSES WITH DIFFERENT POST HARVEST PRACTICES OF RICE



# Sri Lanka standards for raw rice

<b>Characteristics</b>	<b>Grade</b>			
	<b>Premium</b>	<b>1</b>	<b>2</b>	<b>3</b>
<b>Moisture (% by mass, max)</b>	<b>14</b>	<b>14</b>	<b>14</b>	<b>14</b>
<b>Foreign matter (% by mass, max)</b>	<b>0.2</b>	<b>0.5</b>	<b>1.0</b>	<b>1.5</b>
<b>Type admixture (% by mass, max)</b>	<b>Nil</b>	<b>2</b>	<b>6</b>	<b>10</b>
<b>Damage grain (% by mass, max)</b>	<b>Nil</b>	<b>1</b>	<b>2</b>	<b>4</b>
<b>Broken grain (% by mass)</b>	<b>10</b>	<b>20</b>	<b>35</b>	<b>45</b>
<b>Paddy seeds (grains/kg)</b>	<b>Nil</b>	<b>10</b>	<b>30</b>	<b>50</b>

# Sri Lanka standards for parboiled rice

<b>Characteristics</b>	<b>Grade</b>			
	<b>Premium</b>	<b>1</b>	<b>2</b>	<b>3</b>
<b>Moisture (% by mass, max)</b>	<b>14</b>	<b>14</b>	<b>15</b>	<b>15</b>
<b>Foreign matter (% by mass, max)</b>	<b>0.2</b>	<b>0.5</b>	<b>1.0</b>	<b>1.5</b>
<b>Type admixture (% by mass, max)</b>	<b>0.2</b>	<b>2</b>	<b>6</b>	<b>10</b>
<b>Damage grain (% by mass, max)</b>	<b>0.5</b>	<b>2</b>	<b>6</b>	<b>10</b>
<b>Broken grain (% by mass)</b>	<b>1</b>	<b>5</b>	<b>15</b>	<b>20</b>
<b>Paddy seeds (grains/kg)</b>	<b>Nil</b>	<b>10</b>	<b>25</b>	<b>50</b>



## Quality of rice available in the local market according to SLSI Standards

**Survey results 2000**  
**Source IPHT**

Type	Premium	Grade 1	Grade 2	Grade 3	inferior
Raw rice	0	0	2	13	85
Parboiled rice	0	0	9	15	76



# Problem confronting during post harvest operations

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- Adoption of traditional methods
- Tractor threshing
- Lack of capital for mechanization
- High investment cost for modernization
- Lack of suitable rice processing machinery
- High labour costs



# Labour cost incurred in rice milling (1.10 Rs/per kg of rice)

Description of work	Charge per bag
<b>Unloading, weighing and stacking of paddy</b>	10.00 Rs
<b>Cleaning to remove stones, dust and chaff</b>	7.50 Rs
<b>Loading to steaming tank and steaming</b>	8.00 Rs
<b>Spreading and drying of paddy</b>	12.50 Rs
<b>Rice milling and packeting and loading to lorry</b>	12.50 Rs
<b>Total labour cost</b>	<b>50.50 Rs</b>



# **REDUCING RICE PROCESSING COSTS**

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- 1. Mechanization to minimize labour costs**
- 2. Enhance the productivity of rice processing plants**
- 3. Adoption of techniques for reducing electricity costs**





# **IMPROVEMENT OF RICE QUALITY**

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- 1. Improvement of the quality of paddy**
- 2. Improvement of the rice milling technique**
- 3. Operation of a rice grading system**



# Machinery requirement in rice processing industry

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- Localized pre cleaning and drying units near paddy fields
- Operation of polishing and grading unit
- Operation of colour sorting and glass polishing unit
- Operation of weighing and packaging systems



# Areas for mechanization in parboiling process

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- Transport paddy from store to parboiling section
- Washing of paddy before soaking
- Transport soaked paddy to steaming tanks
- Transport steamed paddy to drying yard or to dryer



# What IPHT can do..

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- **Training and make awareness among rice millers and machinery manufacturers in:**
  - **advantages of mechanization of rice production process and adoption of total quality assurance system in rice processing plants**
  - **Directing, providing technical advice and guiding in mechanization of their processing plants to maximize productivity.**



# What policy makers have to do...

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- Provision of concessionary credit facilities to rice millers for mill modernization.
- Strict operation of SLS standards system in rice market.
- Strengthen the existing laws for quality rice marketing.



# What scientists can do...

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- Development of simulation packages for Following technologies
  1. Parboiled paddy dryers
  2. Wet transport systems for soaked paddy
  3. Dust aspiration systems for rice mills
  4. Scrubbing systems to reduce ash pollution



## What rice millers have to do....

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- Consult IPHT before mechanization or modernization of their processing plants.
- Collect information on mechanization and planning with policy makers, scientists, trainers and researchers to improve productivity of their rice production



# What machinery manufactures and agents should do...

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- Consult IPHT/FAE/DOA or any other relevant officials before placing their machinery orders.
- Keep ex-stocks of suitable rice processing machinery.
- Produce affordable and efficient machinery according to the local conditions and requirements.