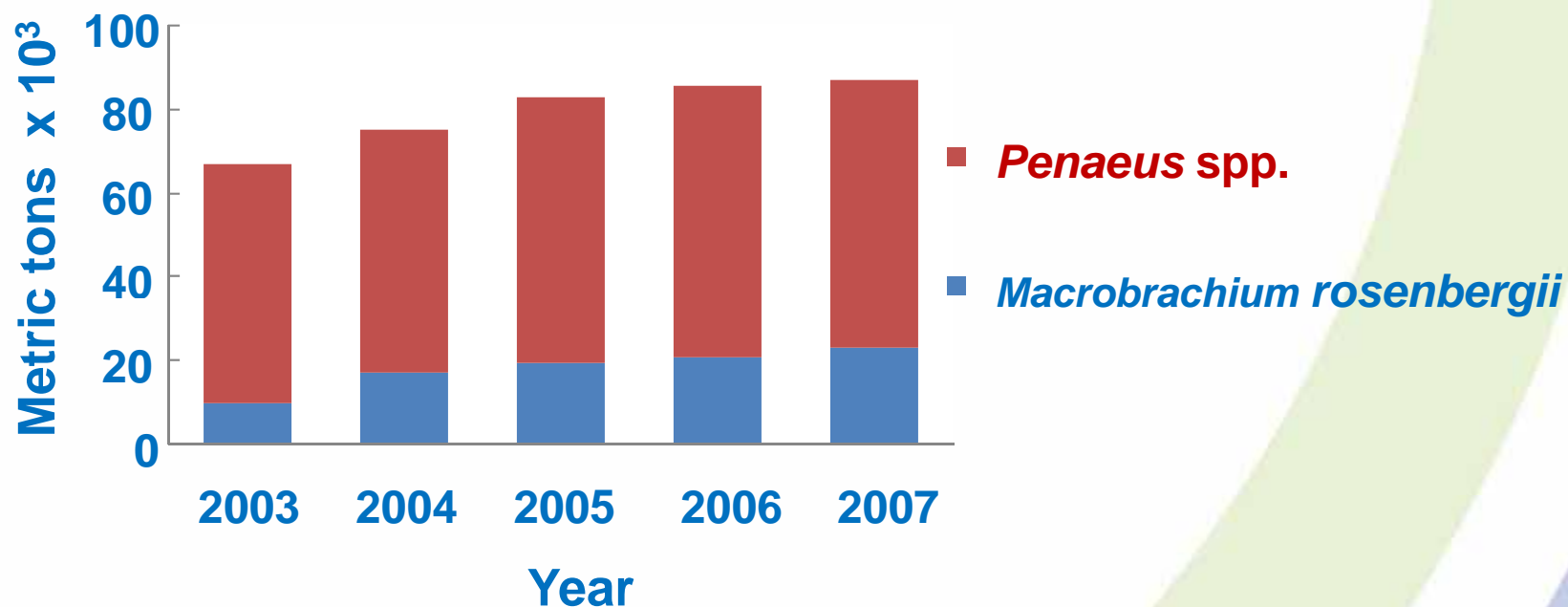




Shrimp hatcheries in Bangladesh

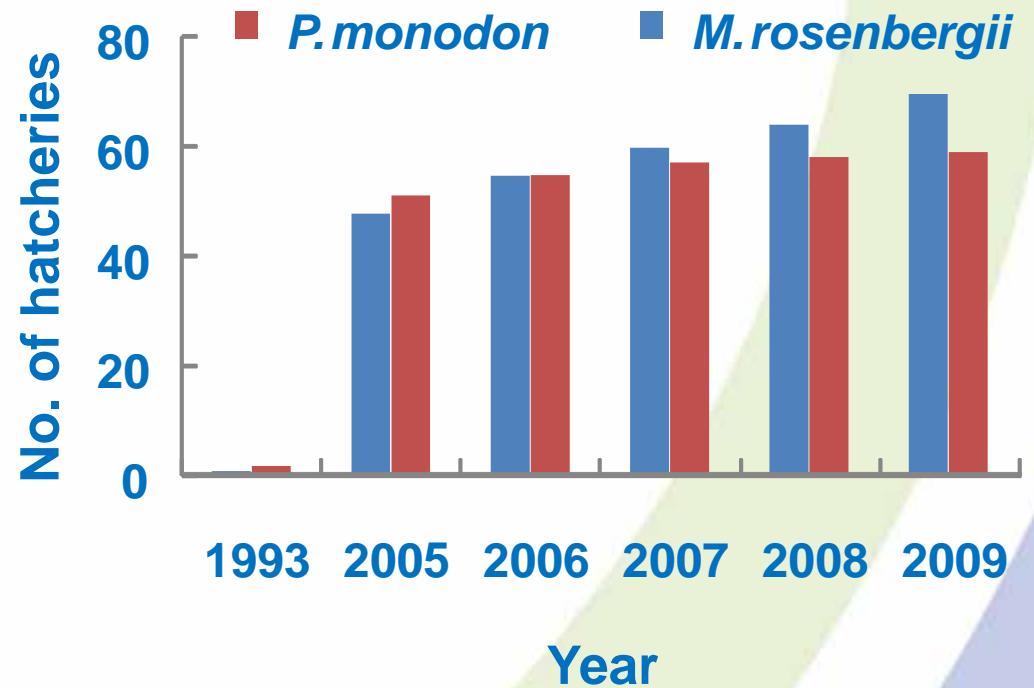
Muhammad Meezanur Rahman

Shrimp production in Bangladesh



- 90% of *Penaeus* sp. production from *P. monodon*
- *P. monodon* farming area 170 thousand hectares
- *M. rosenbergii* farming area 50 thousand hectares

Location and number of shrimp hatcheries



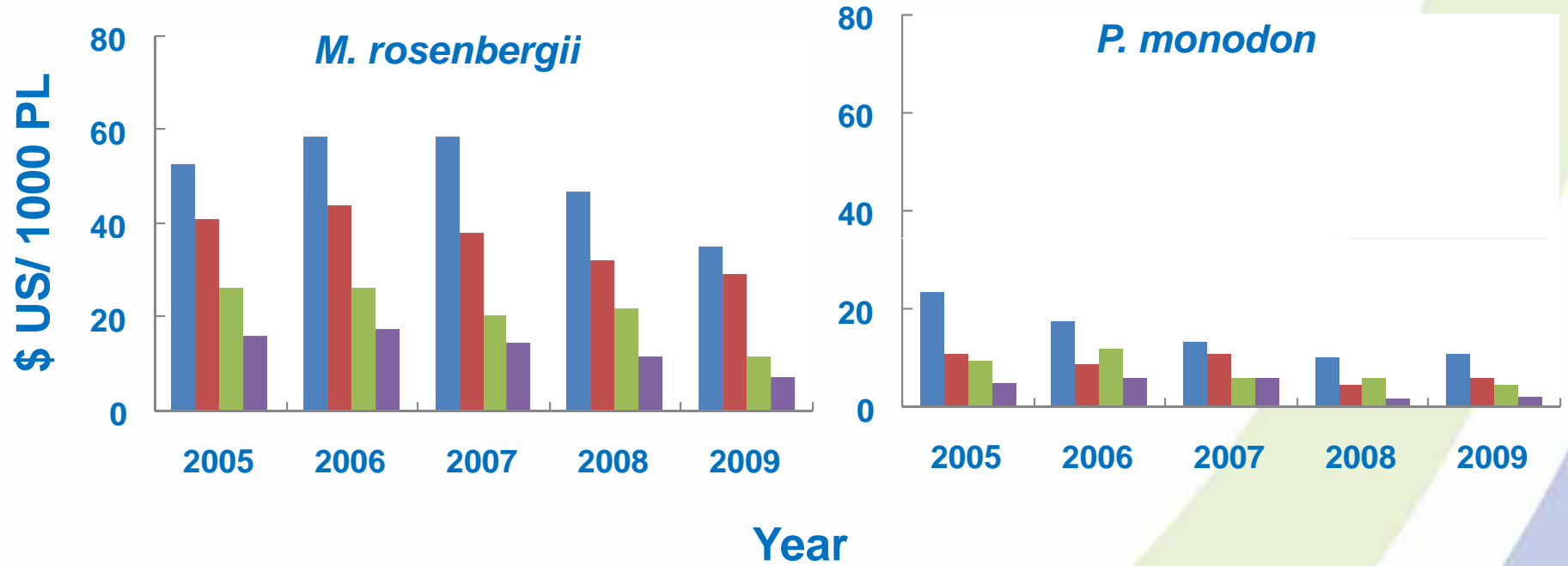
- *M. rosenbergii*
- ▲ *P. monodon*

Hatchery size

Species	Larval rearing tank (MT)	% of hatcheries	Estimated PL production		
			2007	2008	2009
<i>P. monodon</i>	3000 - 5000	18.6			
	1000 - 3000	40.7	8 bil.	10 bil.	7 bil.
	500 - 1000	40.7			
<i>M. rosenbergii</i>	200 - 300	12.8			
	100 - 200	58.6	150 mil.	175 mil.	180 mil.
	10 - 100	28.6			

bill. = billions
mil. = millions

Price Trend - Shrimp PL



■ Wild - max
 ■ Hatch - max
 ■ Wild - min
 ■ Hatch - min

Factors influence PL price

- PL production in the hatcheries, availability of wild catch *M. rosenbergii* PL
- Demand and shrimp price in international market
- Rice production, price in local and international market. In many areas, entrance of saline water were not allowed till April. At this time PL price is low.
- Climatic condition such as rainfall and cyclone
- Farmers, shrimp fry traders look to the quality

Broodstock



M. rosenbergii berried female

Source: River or farms

Constraints:

- Shortage of supply wild berried female
- Loosening ripe egg during transportation

Disease screening



P. monodon

Source: Bay of Bengal

Constraints:

- Disease screening
- Mass mortality after ablation

Shrimp hatchery operation in brief

	<i>P. monodon</i>	<i>M. rosenbergii</i>
Broodstock	Wild (Bay of Bengal)	Wild (River and farms)
Operation	Flow through	Flow through
Water	Seawater	Concentrated seawater, seawater or brackishwater
Water treatment	Sand filter, UV radiation, bag filter, chlorination	Sand filter, chlorination
Feed	Algae - <i>Skeletonema</i> , <i>Chetoceros</i> , Artificial diet for Zoea, Mysis and late PL stage, <i>Artemia</i> for early PL	<i>Artemia</i> nauplii, and home made egg custard
Disease treatment	Mainly Antibiotics, Occasionally probiotics	Mainly Antibiotics, Occasionally probiotics

Live food



Algae production



Artemia hatching tank



Hatched *Artemia* nauplii

Water treatment



Preparation of sand filter



UV radiation



Bag filter

PL packaging in hatcheries - Coxsbazar



PL counting



Oxygenation



PL in polybag

PL transportation



1000 cartoons per flight



500 cartoons per truck

Hatchery to farm (Khulna division) travel distance 24 to 30 h

PL from wild



PL harvest in Coxsbazar beach



P. monodon Wild PL counting



M. rosenbergii wild PL counting

M. rosenbergii PL

Hatchery produced PL



Wild PL



Constraints

- Increased production cost due to price rise of *Artemia* cyst, energy (gasoline)
- Farmers complain for the less growth, survival and higher proportion of female in hatchery produced PL

Shrimp PL trading



PL quality

- Mortality (%) in the polybag
- Movement
- Deformaties



To implement BMP standard in hatcheries

- Health monitoring and control procedures to minimize the risk of disease
- Antibiotics, drug and other chemicals
- Traceability - Record keeping, stocking date, broodstock, feed used, antibiotic and drug used, receiving farm
- Monitor effluents to comply water quality standard

Conclusions

- Hatchery produced PL are cheaper than wild origin. This might indicate the poor quality of hatchery produced PL
- Low survival of *P. monodon* PL in the pond might be related with PL quality, longer time during transportation, wild brood, absence of disease screening and pond management
- In case of *M. rosenbergii* hatcheries, low and longer duration of metamorphosis suggest for technological improvement. It including berried female, better quality diet, larval rearing, and probiotic application

Acknowledgement

**INVE Thailand Ltd. for funding this work
and VLIR - UOS scholarship to participate in
LARVI-09 symposium**

