

CONTENTS

Address of welcome Abdul Kuddus Ahmad Director-General National Paddy and Rice Authority	7
Keynote address HON. Encik Mohd. Kassim Ahmed Deputy Minister of Agriculture	9
Executive Summary	13
Perspectives of Bulk Handling and Storage of Grain	17
Why bulk handling L.D. Bramall	18
Key considerations in the adoption and application of bulk handling and storage systems for grain in developing countries H.M. Cutler	24
Overview of the current status of bulk handling of grain in ASEAN A.S. Cabigan	33
Session Summary	35
Technical Aspects of Bulk Handling and Storage – State of the Art	37
The stages from grain harvesting to procurement, including field collection, transport, and grading Loo Kau Fa	38
Current drying practices and needs in ASEAN J.A. Tumambing	48

Drying systems for the humid tropics R.H. Driscoll and T. Adamczak	58
Storage and ancillary equipment for bulk handling of grain C..J.E. Newman	69
Integrated pest management in grain storage practice M. Bengston	101
Port handling facilities for grain J.V. Moore	109
Session Summary	119
Case Studies on Bulk Handling and Storage in the Humid Tropics – I	123
Transportation and assembly costs for paddy and rice in Malaysia Muzafar Shah Habibullah	124
Rice processing in Malaysia : an evaluation of cost structures Roslan A. Ghaffar and Azman Hassan	133
A model of the paddy and rice industry in Tanjung Karang, Malaysia based on the current marketing chain Salleh bin Yahya, Siow Kiat Foo, and Omar bin Yob	142
A comparative economic analysis of bulk handling methods and their rates of adoption Mohd Ghazali Mohayidin, Loo Kau Fa, and Salleh bin Yahya	158
Sensitivity of a model of the Malaysian rice economy to price and quality parameters Chew Tek Ann, Roslan A. Ghaffar, and salleh bin Yahya	167
Policy analysis and bulk handling of paddy in Malaysia : agenda for Reform of the Malaysian rice economy Mohd Ghazali Mohayidin, Chew Tek Ann, and G.J. Ryland	174
Session Summary	178
Case Studies on Bulk Handling and Storage in the Humid Tropics – II	181

Bulk storage paddy aeration in concrete silos : a Malaysian experience Dhiauddin b. Mohd Nour/Jantan, Teoh Inn Chek, and Ruslima Abdullah	182
Sealed storage of milled rice under carbon dioxide A. Rahim b. Muda, Idris Abas, Dhiauddin b. Mohd Nour/Jantan, and Ruslima Abdullah	189
Maize storage in steel silos at the Takfa silo complex of the Marketing Organization for Farmers, Thailand Likit Porntheeranart	197
Study of bulk handling equipment to support the handling of paddy at KUD and sub Dolog task force levels in Indonesia Anton Martono	200
Bulk in-bin storage of paddy under Malaysian weather conditions Ibni Hajar bin Haji Rukunudin, Samsudin bin Ahmad, Sharifah Norin binti Syed Abdullah, and Bab Kassim	205
Use of a modified light pickup truck for bulk handling of paddy in Malaysia Abdullah Ali	212
Session Summary	216
General Socioeconomic and Technical Considerations	219
Sociological factors as determinants of the extent of change in the postharvest subsector : is bulk handling economic outside of recent state-sponsored land development areas? B. Fegan	220
Technical assessment of integrated procurement, drying, storage, and Pest management systems J.H. Baird	228
From field to port : the logistical operation G.K. Rand	234
Establishing priorities for research and development on bulk handling in the grains postharvest sector J.V. Remenyi	242

Session Summary	251
The Prospect for Bulk Handling in ASEAN Countries	255
Prospects for bulk handling in the Philippines : socioeconomic considerations Tirso B. Paris, Jr	256
Some engineering considerations for bulk storage in the humid tropics Amnaj Covanich	272
Rice industry investment under current market conditions, with particular reference to Malaysia W.L. Cuddihy	274
Session Summary	279
Concluding session	281
Summary of Seminar Abdul Kuddus Ahmad Director-General, LPN	282
Closing remarks J.R. McWilliam Director, ACIAR	284
Participants	287