INDONESIA

Source: esri

General

Indonesia - officially the Republic of Indonesia - is a transcontinental country located mainly in Southeast Asia, with some territories in Oceania. Situated between the Indian and Pacific oceans, it is the world's largest island country, with more than thirteen thousand islands. The area of Indonesia is 190 Mha (million hectares) with in 2024 a population of 284 million, or 1.5 persons per ha (Wikipedia and United Nations, 2024). Java, the world's most populous island, contains more than half of the country's population.

Climate and geography

Lying along the equator, Indonesia's climate tends to be relatively even year-round. Indonesia has a wet season and a dry season with no extremes of summer or winter. For most of Indonesia, the dry season falls between April and October with the wet season between November and March. The climate is almost entirely tropical, dominated by the tropical rainforest climate found in every major island, followed by the tropical monsoon climate that predominantly lies along Java's coastal North, Sulawesi's coastal South and East, and Bali, and finally the tropical Savanna climate, found in isolated locations of Central Java, lowland East Java, coastal southern Papua and smaller islands on the East of Lombok. Some regions, such as Kalimantan and Sumatra, experience only slight differences in rainfall and temperature between the seasons, whereas others, such as Nusa Tenggara, experience far more pronounced differences with droughts in the dry season, and floods in the wet. Rainfall is plentiful, particularly in West Sumatra, West Kalimantan, West Java and Papua. Parts of Sulawesi and some islands closer to Australia, such as Sumba is drier. The almost uniformly warm waters that make up 81% of Indonesia's area ensure that temperatures on land remain fairly constant, in the coastal plains averaging 28 °C. The area's relative humidity ranges between 70 and 90%. Winds are moderate and generally predictable, with monsoons usually blowing in from the South and East in June through October and from the Northwest in November through March. Typhoons and large scale storms pose little hazard in Indonesian waters; the major danger comes from swift currents in channels, such as the Lombok and Sape straits (source: Wikipedia).

At 4,884 metres, Puncak Jaya is Indonesia's highest peak, and Lake Toba in Sumatra is the largest lake. Indonesia's largest rivers are in Kalimantan and New Guinea and include Kapuas, Barito, Mamberamo, Sepik and Mahakam. They serve as communication and transport links between the island's river settlements (source: Wikipedia).

In a report of 1957 the United Nations mention that So far, only minor drainage schemes have been undertaken, although plans are now being formulated for very large drainage developments in both Sumatra and Kalimantan.

The Group Polder Development (1982) describes that there are 43 Mha of lowland in Indonesia, mainly in coastal areas, of which 10,5 Mha has potential for agriculture. About 7 Mha are in the tidal zone: Sumatra 2.35 Mha, Papua 2.3 Mha, Kalimantan 2.27 Mha and Sulawesi 84,000 ha. They also describe that both spontaneous and government organized tidal land development started around 1930, covering in total an area of several hundreds of thousands hectares.

Existing polders

Amongst others polders can be found in the following places (Group Polder Development, 1982):

- *Sisir Gunting Polder (North Sumatra)*. The Sisir Gunting Polder is the oldest polder in Indonesia, the construction started in 1924. The total area is 3,000 ha. After 1975-1976 the dikes and sluices gradually deteriorated to such an extent that more than 1,000 ha became unused;
- *Delta of Kali Brantas*. The main part of this delta has been inpoldered;
- *Jakabaring polder in Palembang*. Nasrul *et al*. (2011) described that the Jakabaring area was intended for urban development. Due to the low surface level of this area and the expected land

subsidence of about 50 mm/year this will imply polder development. At Google Earth it can be observed that this polder has been made. It houses among others sport facilities.

- *Polders in Jakarta*. The *Draft Spatial Plan of the Province of DKI Jakarta 2010-2030* shows the existing and proposed polders in Jakarta. In total there are 31 existing and 26 proposed polders (Figure 1) (Badan Perencanaan dan Pembangunan Daerah Provinsi DKI Jakarta, 2010). Kop *et al*. (1983) give more detailed information on the Pluit Polder. They also describe that the excess water from upstream of Jakarta is in principle diverted around the lowlying areas by the West Banjir Canal and the East Banjir Canal. Originally these canals have been designed for conditions of 1/100 years. The West Banjir Canal was constructed in 1918 and has a capacity of 300 m^3/s. The East banjir Canal was only recently completed. The area surrounded by these two canals and the coastline consists predominantly of the polders as mentioned above. In the polders a significant subsidence can occur.
  * for storage within the Pluit polder a reservoir of 83 ha (3% of the polder area) has been constructed (Figure 2). Kop *et al*. (1983) give the design criteria for the water level in the reservoir under the conditions of 1/25 years. These are: in the wet season P.P.[1] -1.90 m and P.P. + 1.00 m. During the wet season a minimum water level of P.P. -1.00 m;

Figure 2. Aerial view of the storage reservoir and waterworks in the Pluit Polder (Kop et al, 1983)

  * Kop *et al*. (1983) also give values for the short term maximum rainfalls that can be expected in Jakarta. These values are shown in Table I. Based on the above values a simulation has been done on the urban polder drainage system. The schematisation is shown in Figure 3;
  * Kalmah *et al*. (2010). Describe the situation in the Kelapa Gading area, which consists of the polders: Kodamar, Don Bosco, Pegangsaan and Sunter Timur. The Kodamar area is separated from the other three areas. It has an area of 169 ha, a pumping capacity of 3.9 m^3/s (200 mm/day) and 5% storage capacity, which makes this polder very safe. The other three areas are more or less connected to each other. They have an area of 1,288 ha, a pumping capacity of 10 m^3/s (67 mm/day) and a storage capacity of roughly 6 ha (0.5%). This makes this area more risky for flooding. An additional problem, at least up to 2010, was that the dike was not fully closed and that there was still an open connection to the adjacent river, which made the area subject to flooding from the river.

[1] P.P. = Peil Priok, which is the reference level in Jakarta. According to Kop *et al*. (1983) it was by that time lowest low water (L.L.W.) = P.P. 0.00 m, highest low water (M.L.W) = P.P. +0.35 m, minimum high water (M.H.W.) = P.P. + 0.90 m, maximum high water = P.P. + 1.25 m

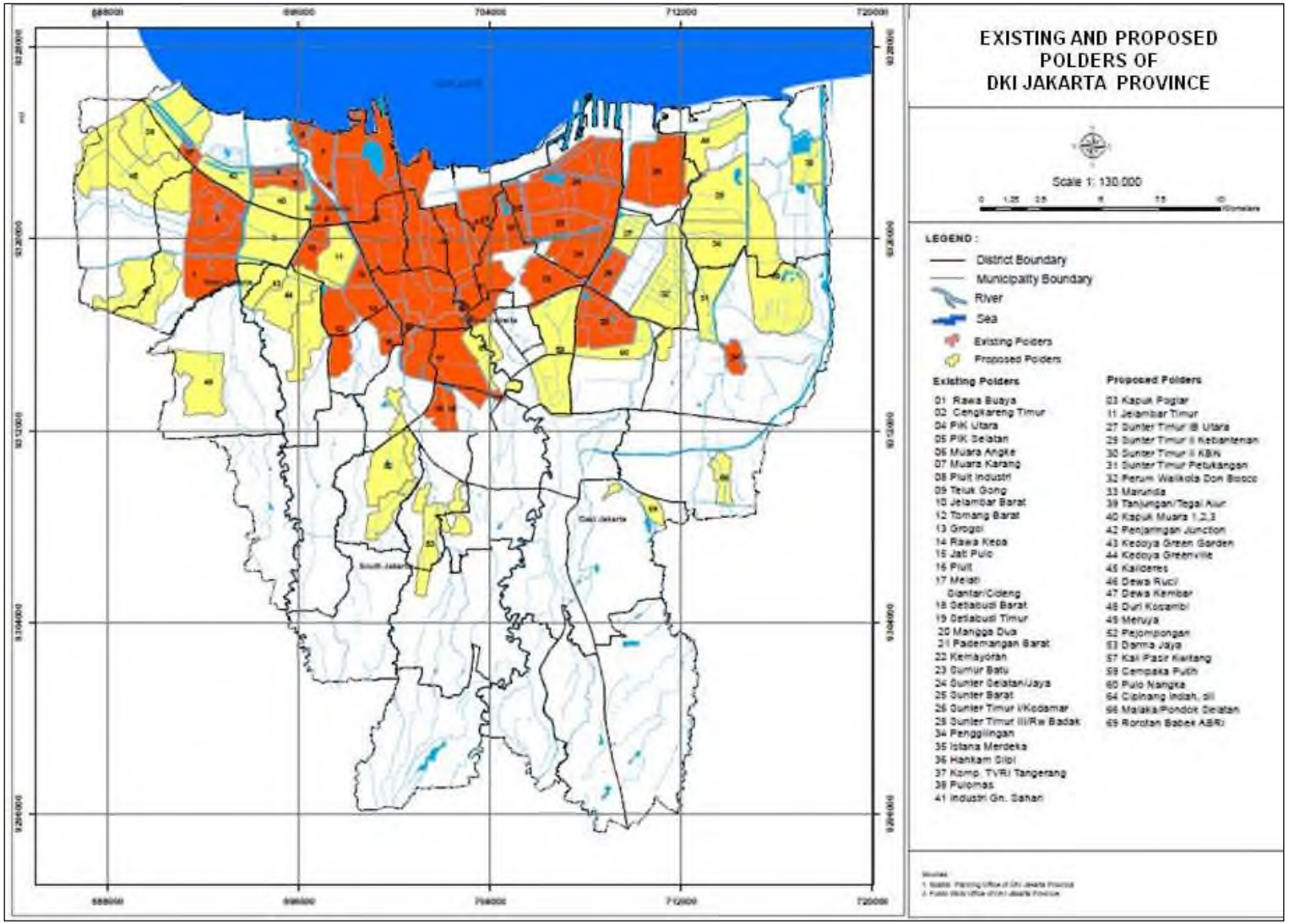

Figure 1. Existing and proposed polder locations according to the Draft Spatial Plan of the Province of DKI Jakarta 2010-2030 (Badan Perencanaan dan Pembangunan Daerah Provinsi DKI Jakarta, 2010)

Table I. Average maximum rainfall in Jakarta (Kop *et al*., 1983)

Period	Accumulated maximum rainfall in mm with a chance of occurrence per year		
	½	1/25	1/100
5 minutes	10	15	17
15 minutes	27	37	41
1 hour	61	91	106
6 hour	90	163	193
24 hour	133	222	266

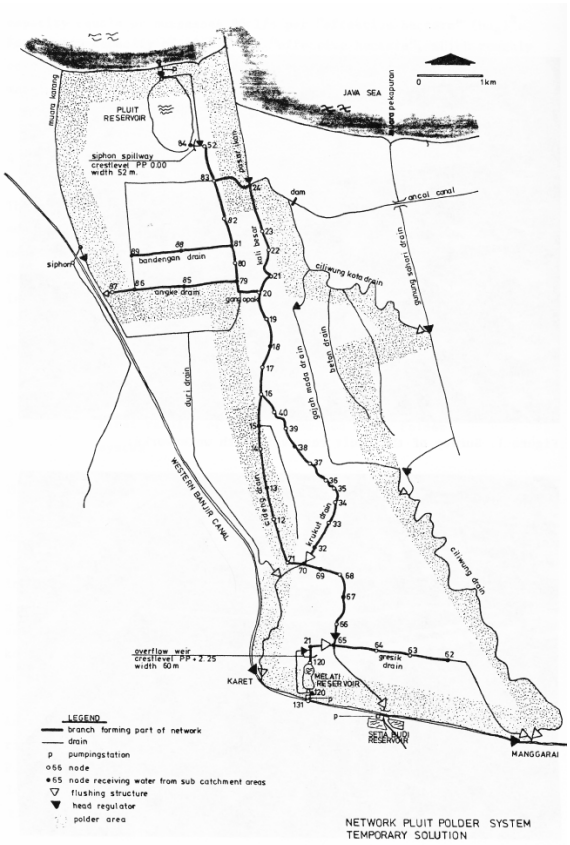

Figure 3. Schematisation of the urban polder drainage system of the Pluit Polder (Kop et al., 1983)

- *Polders in Semarang.* Semarang Old City (Kota Lama) is suffering from regular flooding and pollution that hamper the revitalisation of the old city. In addition, primarily due to extraction of deep groundwater, land subsidence of 5 to 10 centimetres per year is taking place. In this area flooding can be caused by severe rains, river floods and sea floods. Severe rains may result in flooding of Semarang Old City in different ways, being:
  * severe rains occur in Semarang Old City in such a way that they exceed the drainage capacity of the urban drainage system;
  * severe rains occur in the surrounding areas in such a way that water flows from these areas into Semarang Old City. In addition to the rainfall in Semarang Old City this overland flow may result in an exceedance of the capacity of the urban drainage system.

With respect to the regime of Semarang River several items of significant impact have been recently implemented. These concern:

* upstream of Semarang Old City Semarang River has been blocked by the 'Bendung Simongan' and the river water from upstream is diverted to the West Banjir Canal;

* on the west side of the Old City there is a split in Semarang River where part of the water went through a straight canal to the sea and the other part through Semarang River. The mouth of the canal has been blocked near the sea and it has lost its function. In the mouth of Semarang River a pumping station with a capacity of 30 m^3/s has been built. Although there are discharge sluices aside of this pumping station these are normally closed and will only be opened in extreme cases. This implies that there is no tidal influence anymore in Semarang River and that all excess water from the area that is served by this pumping station is pumped out to the sea. As a consequence of this the Old City is now a polder.

Before the installation of the pumping station flooding of the Old City from the sea could occur during spring tide periods and there is not really a danger of storm surges, or tsunamis. However, the Banger River was still in open connection with the sea and tidal flooding could occur through this river. The flood water could then still flow overland to the Old City. While also in the Banger Polder a pumping station has been installed and the sea dike has been closed. Flooding from the sea can now only occur under exceptional circumstances.

Discharge of excess water from the Old City takes place to Semarang River in two ways:

* through an outlet structure that is provided with vertical gates;
* through two pumping stations, one aside of the Tawang pond and the other near the split in Semarang River. It is not clear if these pumping stations pump the water separately to Semarang River, or that the pumping station near the storage pond pumps water to the pumping station near the split in Semarang River and that all the water is pumped by this pumping station to Semarang River.

As far as the urban drainage of the low part of Semarang is concerned the systems are in principle the same as in the Old City. However, in most of the surrounding areas drainage is still achieved by gravity and no pumping has been introduced yet in addition to the pumping station at the mouth of Semarang River. Flood protection for the lower part of Semarang, including the Old City, is provided by the walls along the East Banjir Canal and the West Banjir Canal. It might be possible that in addition water can flow from higher parts of Semarang directly overland or through small urban drains to the lower parts.

- *Polders in South Kalimantan*. A total area of 800,000 ha has been reclaimed in the framework of the so-called *One million ha project*. Due to severe subsidence of the peat soils several of the reclaimed areas are in a bad state, or abandoned. At present some of the polders in this area are being upgraded;
- *Polders in Surabaya*. Nayadiah (2011) describes that the eastern part of Surabaya has an elevation lower than 5 m+MSL and is threatened by floods that are worsened by the tidal fluctuation. She has carefully analysed the conditions in the area. There are several urban drains in the area, part of them are provided with (flap)gates, but others are in open connection with the sea, or the river. Therefore, certain parts are in fact polders, but the boundaries of these polders are not fully clear;
- *Rawa Sragi Swamp (Lampung Province)*. The Rawa Sragi Swamp Reclamation Project is situated along the downstream reach of the Way Sekampung River. The polder area covers 7,400 ha;
- *Secanggang Polder Project (North-east coast of Sumatra).* This was a pilot polder near Medam with an area of 3,000 ha. In 1970 a report was submitted on a study on establishment of a polder for irrigated rice cultivation in the coastal area of East Sumatra, covering 11,000 ha some 30 km North-east of Medan (NEDECO, 1971). The Group Polder Development (1982) mentions that there was by that time another polder of 6,000 ha in the neighbourhood in a neglected state;

General characteristics of the polders in Indonesia are shown in Table II. Table IV shows the characteristics of the water management and flood protection systems of the existing polders.

Proposed polders

Amongst others proposed polders can be found in the following places (Group Polder Development, 1982):

- *Polder area near Kupang (Timor) (about 3,000 ha).* The proposed polder is located on the Bay of Kupang in the Ossao-area, about 30 km from Kupang, in the Province of Nusa Tenggara Timur. I could not identify this polder at Google Earth;
  Rawa Sragi Swamp (Lampung Province). Reclaimable areas are: Rawa Selapan, 3,700 ha; Rawa Kramat, 7,500 ha and Rawa Pisang, 7,100 ha. Here some polder type landscapes can be identified at Google Earth;
- *Serbahuta Ria and Kuo Swamp*. Part of the area consists of swampy lowlands, which could be reclaimed. However, water management may be very costly, while drainage by pumping will be required. In this case a typical polder area can be identified at Google Earth;
- Mawandha *et al*. (2018) describe that the Bengawan Solo River at Java causes regular flooding of the villages of Sumbangtimun and Kandangan. Part of the area is already protected by a dike, but the dike is not surrounding the area. They have analysed the option to create what they call mini polders. The design is shown in Figure 4. Here some polder type landscapes can be identified at Google Earth;

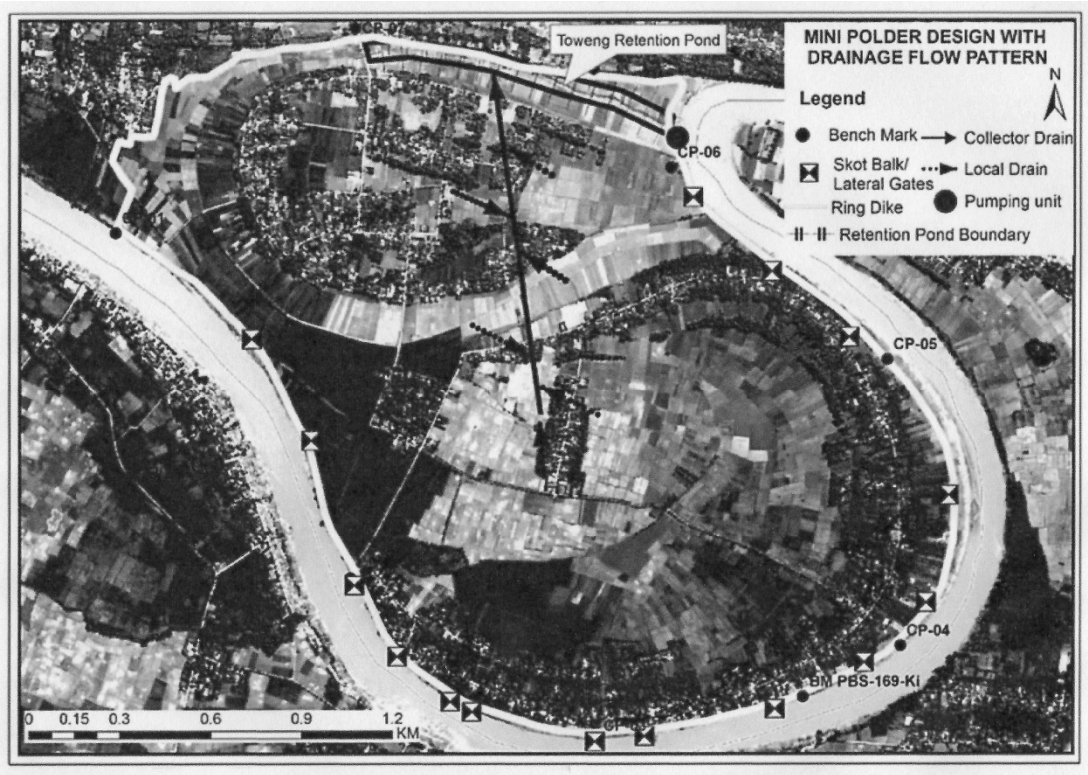

Figure 4. Design of mini polder and its flow pattern (*Mawandha et al., 2018)*

Location of the polders in Indonesia as shown on the World polder map

The location of the polders in Indonesia is shown in Figure 5.

The pictures by Prof. Adriaan Volker are shown in Table IV. The pictures by Prof. Bart Schultz are shown in Table V.

Figure 5. Location of the polders in Indonesia (source: esri – Batavialand)

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Note: United Nations (1957) mention the following areas where polders could be developed: Lakbok swamp (11,000 ha); West Kalimantan (5,000);

Bart Schultz

Lelystad, October 2024

Table II. General characteristics of existing polders in Indonesia

Name	Reclamation	Area in ha	Type *)	Latitudes	Longitudes	Elevation in m+MSL	Land use
Existing polders							
Alabio	1930	6,600	RLL	2º 28' S	115^{E} 12' E	7	Agriculture
Dadahup Polder	1998/2024	21,224	RLL	2º 39' S	114º 42' E	-2	Agriculture
Delta of Kali Brantas			RLL	7º 33' S	112^{E} 51' E	0	Agriculture
Jakabaring			RLL				Urban
Polder near Secanggang		6,000	RLL	3º 51' N	98^{E} 32' E	-2	
Polders in Jakarta:							
* Cengkareng Timur			RLL	6º 09' S	106^{E} 44' E	0	Urban
* Grogol			RLL	6º 10' S	106^{E} 47' E	4	Urban
* Hankam Silgil			RLL				Urban
* Industri Gn Sahan			RLL				Urban
* Istana Merdeka			RLL	6º 10' S	106^{E} 49' E	4	Urban
* Jati Pulo			RLL	6º 11' S	106^{E} 48' E	5	Urban
* Jelambar Barat			RLL	6º 09' S	106^{E} 47' E	4	Urban
* Kemayoran			RLL	6º 09' S	106^{E} 51' E	5	Urban
* Komp. TVRI Tangerang			RLL	6º 10' S	106^{E} 38' E	17	Urban
* Mangga Dua			RLL	6º 08' S	106^{E} 42' E	5	Urban
* Melat Oantar Odeng			RLL	6º 12' S	106^{E} 49' E	7	Urban
* Muara Angke			RLL	6º 07' S	106^{E} 46' E	0	Urban
* Muara Karang			RLL	6º 07' S	106^{E} 47' E	0	Urban
* Pademangan Barat			RLL	6º 08' S	106^{E} 50' E	2	Urban
* Pengglingcan			RLL	6º 12' S	106^{E} 56' E	8	Urban
* P K Selatan			RLL				Urban
* P K Utara			RLL				Urban
* Pluit	1981	2,450	RLL	6º 07' S	106^{E} 47' E	0	Urban
* Pluit Industri			RLL	6º 07' S	106^{E} 47' E	0	Urban
* Pulomas			RLL	6º 11' S	106^{E} 53' E	5	Urban
* Rawa Buaya			RLL	6º 10' S	106^{E} 44' E	0	Urban
* Rawa Kepa			RLL	6º 10' S	106^{E} 48' E	1	Urban
* Setiabudi Barat			RLL	6º 13' S	106^{E} 49' E	8	Urban
* Setiabudi Timur			RLL	6º 13' S	106^{E} 50' E	10	Urban
* Sunter Barat			RLL	6º 08' S	106^{E} 52' E	4	Urban
* Sumur Batu			RLL	6º 10' S	106^{E} 52' E	5	Urban
* Sunter Selatan/Jaya			RLL	6º 09' S	106^{E} 52' E	4	Urban

* Sunter Timur I/Kodamar		14,508	RLL	6º 09' S	106E 52' E	3	Urban
* Sunter Timur III/Rawa Badak			RLL	6º 08' S	106E 52' E	4	Urban
* Teluk Gong			RLL	6º 08' S	106E 47' E	3	Urban
Polders in Semarang			RLL	6º 59' S	110E 25' E	5	Urban
Polders in South Kalimantan		800,000	RLL	2º 29' S	114E 37' E	8	Agriculture
Polders in Surabaya			RLL	7º 14' S	112E 44' E	1	Urban
Rawa Sragi Swamp		7,400	RLL	5º 32' S	105E 39' E	4	Agriculture
Secanggang Polder Project		3,600	RLL	3º 53' N	98E 33' E	-3	Agriculture
Sisir Gunting Polder		3,000					
Sub-total		> 835,000					
Proposed polders							
Polder polder area near Kupang		3,500					
Polders in Jakarta:							
* Cemoaka Puti			RLL				Urban
* Cipinang Inda, o			RLL				Urban
* Darma Jaya			RLL				Urban
* Dewa Kembar			RLL				Urban
* Dewa Ruc			RLL				Urban
* Dura Kosambi			RLL				Urban
* Jelambar Timur			RLL				Urban
* Kalideres			RLL				Urban
* Kali Pasir Kwitang			RLL				Urban
* Kapuk Muara 1, 2, 3			RLL				Urban
* Kapuk Poglar			RLL				Urban
* Kedoya Green Garden			RLL				Urban
* Kedoya Greenville			RLL				Urban
* Malaka/Pondok Delatan			RLL				Urban
* Marunda			RLL				Urban
* Meruya			RLL				Urban
* Pejompongan			RLL				Urban
* Penjaringan Junction			RLL				Urban
* Perum Wadiota Don Bosco			RLL				Urban
* Pulo Nangka			RLL				Urban
* Rorotan babek, ABRI			RLL				Urban
* Sunter Timur II Utara			RLL				Urban
* Sunter Timur III KBN			RLL				Urban

* Sunter Timur III Kebantenan			RLL				Urban
* Sunter Timur Petukangan			RLL				Urban
* Tanjungan/Tegal Ajur			RLL				Urban
Rawa Sragi Swamp		18,300	RLL				Agriculture
Serbahuta Ria and Kuo Swamp			RLL				
Sub-toatal		> 21,800					
Total		> 841,800					

*) RLL = reclaimed low-lying land; LGS = land gained on the sea; DL = drained lake

Table III. Characteristics of the water management and flood protection system of existing polders in Indonesia

Name	Design criteria in chance of occurrence/year							
	Water management						Flood protection	
	Drainage					Irrigation	Rural	Urban
	Type	Design criterion	Percentage of open water	Discharge capacity				
				m^3/s	mm/day			
Pluit	RLL	1/25		16	56			1/100

Table IV. Pictures of polders and lowlands in Indonesia by Prof. Adriaan Volker

			
A2 058/I.2.58 Lengkon distribution structure apex of the Kali Brantas delta in East Java	A6 003/1.6.3 Banjarmasin, Delta Pulau Petak, South Kalimantan. February 1977	A6 004/1.6.4 Banjarmasin, Delta Pulau Petak, South Kalimantan. February 1977	A6 006/1.6.6 Barambai, South Kalimantan. February 1977
			
A6 007/1.6.7 Barambai, South Kalimantan. February 1977	A6 008/1.6.8 Barambai, South Kalimantan. February 1977	A6 009/1.6.9 Barambai, South Kalimantan. February 1977	A6 010/1.6.10 Barambai, South Kalimantan. February 1977
			
A6 012/1.6.12 Barambai, South Kalimantan. February 1977	A6 014/1.6.14 Barambai, South Kalimantan. February 1977	A6 015/1.6.15 Barambai, South Kalimantan. February 1977	A6 017/I.6.17 Tamban Luar. February 1977

Table IV. Pictures of polders and lowlands in Indonesia by Prof. Adriaan Volker (continued)

			
A6 018/I.6.18 Tamban Luar. February 1977	A6 020/I.6.20 Tamban Luar. February 1977	A6 024/I.6.24 Anjir Tamban. February 1977	A6 025/I.6.25 Anjir Tamban. February 1977
			
A6 027/I.6.27 Delta Upang, Primary canal 2, South Sumatra. February 1977	A6 032/I.6.32 Delta Upang, Primary canal 2, South Sumatra. February 1977	A6 034/I.6.34 Delta Upang, Primary canal 2, South Sumatra. February 1977	A6 035/I.6.35 Delta Upang, Primary canal 2, South Sumatra. February 1977
			
A6 036/I.6.36 Delta Upang, Primary canal 2, South Sumatra. February 1977	A6 040/I.6.40 Rawa Seragi.February 1977	A6 041/I.6.41 Urban area in lowland	A6 043/I.6.43 Urban area in lowland

Table IV. Pictures of polders and lowlands in Indonesia by Prof. Adriaan Volker (continued)

			
A6 047/I.6.47 Urban area in lowland	A6 048/I.6.48 Urban area in lowland	A6 049/I.6.49 Karang Agung, Musi delta, South Sumatra. 1981	A6 050/I.6.50 Karang Agung, Musi delta, South Sumatra. June 1987
			
A6 051/I.6.51 Karang Agung, Musi delta, South Sumatra. June 1987	A6 052/I.6.52 Karang Agung, Musi delta, South Sumatra. June 1987	A6 054/I.6.54 Karang Agung, Musi delta, South Sumatra. June 1987	A6 057/I.6.57 Karang Agung, Musi delta, South Sumatra. June 1987
			
A6 058/I.6.58 Karang Agung, Musi delta, South Sumatra. June 1987	A6 059/I.6.59 Karang Agung, Musi delta, South Sumatra. June 1987	A6 060/I.6.60 Karang Agung, Musi delta, South Sumatra. June 1987	A6 061/I.6.61 Karang Agung, Musi delta, South Sumatra. June 1987

Table IV. Pictures of polders and lowlands in Indonesia by Prof. Adriaan Volker (continued)

			
A6 062/I.6.62 Karang Agung, Musi delta, South Sumatra. June 1987	A6 063/I.6.63 Karang Agung, Musi delta, South Sumatra. June 1987	A6 068/I.6.68 Karang Agung, Musi delta, South Sumatra. June 1987	A6 070/I.6.70 Karang Agung, Musi delta, South Sumatra. June 1987
			
A6 073/I.6.73 Base camp in de Musi delta, South Sumatra. June 1987	A6 077/I.6.77 Karang Agung Hulu, Musi delta, South Sumatra. June 1987	A6 078/I.6.78 Karang Agung Hulu, Musi delta, South Sumatra. June 1987	A6 080/I.6.80 Karang Agung Hulu, Musi delta, South Sumatra. June 1987
			
A6 081/I.6.81 Karang Agung Hulu, Musi delta, South Sumatra. June 1987	A6 083/I.6.83 Karang Agung II, Musi delta, South Sumatra. 1985	A6 085/I.6.85 Karang Agung II, Musi delta, South Sumatra. 1985	A6 086/I.6.86 Karang Agung II, Musi delta, South Sumatra. 1985

Table IV. Pictures of polders and lowlands in Indonesia by Prof. Adriaan Volker (continued)

			
A6 087/I.6.87 Karang Agung II, Musi delta, South Sumatra. 1985	A6 089/I.6.89 Delta Telang I, Musi delta, South Sumatra. June 1987	A6 090/I.6.90 Delta Telang I, Musi delta, South Sumatra. June 1987	A6 091/I.6.91 Delta Telang I, Musi delta, South Sumatra. June 1987
			
A6 092/I.6.92 Delta Telang I, Musi delta, South Sumatra. June 1987	A6 094/I.6.94 Tidal irrigation Banyuasin Delta Telang II, South Sumatra. June 1987	A6 096/I.6.96 Tidal irrigation Banyuasin Delta Telang II, South Sumatra. June 1987	A5 6 064/A.5.6.64 Primary canal, presumably in Indonesia
			
D3 4 041/D.3.4.41 Hydrological station in Lowland area	D3 4 044/D.3.4.44 Bridge over primary canal	D3 4 045/D.3.4.45 Culvert and staff gauge in tertiary canal	D3 4 046/D.3.4.46 Bridge over secondary canal

Table IV. Pictures of polders and lowlands in Indonesia by Prof. Adriaan Volker (continued)

			
D3 4 047/D.3.4.47 Distribution structure in tertiary canal	D3 4 048/D.3.4.48 Bridge over secondary canal	D3 4 049/D.3.4.49 Transplantation of rice	D3 4 050/D.3.4.50 Dredged material from secondary canal at the bank
			
D3 4 052/D.3.4.52 Dike along lowland area	D3 4 053/D.3.4.53 Water supply to and discharge from an installation	D3 4 054/D.3.4.54 Discharge sluice	D3 4 056/D.3.4.56 Primary canal to discharge sluice, or drainage pumping station
			
D3 4 057/D.3.4.57 Discharge sluice	D3 4 058/D.3.4.58 Dike along primary canal	D3 4 059/D.3.4.59 Discharge sluice?	D3 4 060/D.3.4.60 Bridge over primary canal

Table IV. Pictures of polders and lowlands in Indonesia by Prof. Adriaan Volker (continued)

			
D3 4 061/D.3.4.61 View from the sluice	D3 4 062/D.3.4.62 Rice fields	D3 4 067/D.3.4.67 Aerial picture of rice fields and urban area	D3 4 069/D.3.4.69 Landscape in lowland area
			
D3 4 070/D.3.4.70 Traditional boat in lowland area	D3 4 071/D.3.4.71 Primary canal in lowland area	D3 4 072/D.3.4.72 Bridge over Primary canal	D3 4 073/D.3.4.73 Nice house in lowland area
			
D3 4 074/D.3.4.74 Secondary canal in lowland area	D3 4 076/D.3.4.76 Open connection between tertiary and secondary canal	D3 4 077/D.3.4.77 Open field drain between bananas and palm trees	D3 4 078/D.3.4.78 Transmigrant house in lowland area

Table IV. Pictures of polders and lowlands in Indonesia by Prof. Adriaan Volker (continued)

			
D3 4 080/D.3.4.80 Overgrow in lowland area	D3 5 001/D.3.5.1 Tertiary canal in lowland area	D3 5 002/D.3.5.2 Transmigrant house with roofwater collection	D3 5 003/D.3.5.3 Rice field in lowland area
			
D3 5 004/D.3.5.4 Rice field surrounded by high ridges – Sorjan system	D3 5 005/D.3.5.5 Connection of primary canal with secondary canals	D3 5 007/D.3.5.7 Secondary canal in lowland area	D3 5 008/D.3.5.8 Landscape with mosk in newly reclaimed lowland area
			
D3 5 009/D.3.5.9 Jetty for boats at low tide	D3 5 010/D.3.5.10 Landscape with transmigrant houses in newly reclaimed lowland area	D3 5 011/D.3.5.11 Primary canal in lowland area at low tide	D3 5 012/D.3.5.12 Boat in primary canal at low tide

Table IV. Pictures of polders and lowlands in Indonesia by Prof. Adriaan Volker (continued)

			
D3 5 014/D.3.5.14 Profiling of the bank of a primary canal ar low tide	D3 5 016/D.3.5.16 Thatched huts in lowland area	D3 5 019/D.3.5.19 Hydraulic crane with a long arm	D3 5 021/D.3.5.21 House at the bank in lowland area
			
D3 5 023/D.3.5.23 Newly dredged tertiary canal in lowland area	D3 5 024/D.3.5.24 House at the bank in lowland area	D3 5 025/D.3.5.25 Discharge sluice	D3 5 026/D.3.5.26 Presumably discharge sluice
			
EV 004/EV-VI-4 Boats in canal lowland area	EV 005/EV-VI-5 Overgrown canal in lowland area	D2 4 036/IV-36 Bridge over the Musi River near Palembang, South Sumatra. 27/9-10/10 1985	D2 4 038/IV-38 Newly excavated primary canal in the Musi Delta. 27/9-10/10 1985

Table V. Pictures of polders and lowlands in Indonesia by Prof. Bart Schultz

			
D2 4 039/IV-39 Newly excavated crossing of a secondary and a tertiary canal in the Musi Delta. 27/9-10/10 1985	D2 4 044/IV-44 Prof. Jan van Dam steps from a speedboat at a jetty in a primary canal in the Musi Delta. 27/9-10/10 1985	D2 4 045/IV-45 Traditional boat is stuck at low tide in a primary canal in the Musi Delta. 27/9-10/10 1985	D2 4 046/IV-46 Nipah palms at the bank of a river branch in the Musi Delta. These palms grow in the transition zone from fresh to saline water. 27/9-10/10 1985
			
D2 4 050/IV-50 Local market in a transmigrants area in the Musi Delta. 27/9-10/10 1985	D3 5 001/V-1 Sluice with vertical gates in lowland area Upang in the Musi Delta. 27/9-10/10 1985	D3 5 003/V-3 Boats for local transport in lowland area Upang in the Musi Delta. 27/9-10/10 1985	D3 5 004/V-4 Goat at the top of a discharge sluice in lowland area Upang in the Musi Delta. 27/9-10/10 1985

Table V. Pictures of polders and lowlands in Indonesia by Prof. Bart Schultz (continued)

			
D3 5 005/V-5 New transmigrants for their house in the Musi Delta. 27/9-10/10 1985	D3 5 008/V-8 People at a dike along a newly constructed canal in a lowland area in the Musi Delta. 27/9-10/10 1985	D3 5 011/V-11 Local boats at the Barito River in South Kalimantan. 31/1-9/2 1986	D3 5 013/V-13 Prof. Wil Segeren, former Head of the Scientific Decision of the IJsselmeerpolders Development Authority exercises soil treatment in South Kalimantan. 31/1-9/2 1986
			
D3 5 014/V-14 Prof. Segeren drinks coconut milk, offered by the inhabitants of the village in South Kalimantan. 31/1-9/2 1986	D3 5 015/V-15 Ir. Wout the Vries, staff memebr IHE Delft, poses with the village people and their children in South Kalimantan. 31/1-9/2 1986	D3 5 017/V-17 The transport of rice inorder to transplant it in a transmigration area in South Kalimantan. 31/1-9/2 1986	D3 5 022/V-22 Traditional houses along a river in South Kalimantan. 31/1-9/2 1986

Table V. Pictures of polders and lowlands in Indonesia by Prof. Bart Schultz (continued)

			
D3 5 024/V-24 Jetty in Kuala Kapuas along the Barito River in South Kalimantan. 31/1-9/2 1986	D3 5 030/V-30 Watercourse along the access road with bridges near the houses in a transmigration area in South Kalimantan. 31/1-9/2 1986	D3 5 031/V-31 Indonesian children like to be pictured. This one is taken in a transmigration area in South Kalimantan. 31/1-9/2 1986	D3 5 032/V-32 Improved transmigrants house in one of the transmigration areas in South Kalimantan. 31/1-9/2 1986
			
D3 5 033/V-33 Pump for the watersupply in one of the transmigration areas in South Kalimantan. 31/1-9/2 1986	D3 5 038/V-38 Bridge over one of the watercourses along the access roads in a low lying transmigration area in South Kalimantan. Under the bridge is a stoplog weir, to prevent the inflow of high outside water. However, the logs were missing and flooding occurred. 31/1-9/2 1986	D3 5 040/V-40 Groups picture with Prof. Wil Segeren, Prof. Bart Schultz, Ir. Wout the Vries and several Indonesian counterparts in South Kalimantan. 31/1-9/2 1986	D3 6 020/VI-20 From 24 August till 3 September 1986 the bilateral Indonesian – Netherlands Symposium on Lowland Development in Indonesia was conducted in the Erasmushouse near the Netherlands Embassy in Jakarta. Preceeding to the symposium there was er a two day field trip to South Sumatra. At the picture a banner at the airport of Palembang. Here Mrs. Anneke Stuip (left) and Mrs. Truus Luijendijk (right). 24 and 25/8 1986

Table V. Pictures of polders and lowlands in Indonesia by Prof. Bart Schultz (continued)

			
D3 6 021/VI-21 In speedboats there was a visit to the transmigration area Karang Agung in the Musi Delta in South Sumatra. 24 and 25/8 1986	D3 6 030/VI-30 Lookout in the transmigration area Karang Agung in the Musi Delta in South Sumatra. 24 and 25/8 1986	D3 6 032/VI-32 Departure by speedboat from the transmigration area Karang Agung in the Musi Delta in South Sumatra. 24 and 25/8 1986	D3 6 034/VI-34 Welcome banner in the Telang area, Musi Delta, South Sumatra. 24 and 25/8 1986
			
D3 6 037/VI-37 Newly constructed secondary canal in the Telang area, Musi Delta, South Sumatra. 24 and 25/8 1986	D4 7 037/VII-37 Badly maintained secondary canal in the transmigration area Telang, Musi Delta, South Sumatra. 24/7 – 10/8 1988	D4 7 039/VII-39 Local transport in secondary canal in the transmigration area Telang, Musi Delta, South Sumatra. 24/7 – 10/8 1988	D4 7 040/VII-40 Zuurzak tree. 24/7 – 10/8 1988

Table V. Pictures of polders and lowlands in Indonesia by Prof. Bart Schultz (continued)

			
D4 7 042/VII-42 The Director of the Ministry of Public Works, South Sumatra Division, shows how the vegetation at the bank of a secondary canal in the transmigration area Telang, Musi Delta, South Sumatra has to be maintained. 24/7 – 10/8 1988	D4 7 044/VII-44 Extention of a transmigrants house in Telang, Musi Delta, South Sumatra. 24/7 – 10/8 1988	D4 7 047/VII-47 Landscape in the transmigration area Telang, Musi Delta, South Sumatra. 24/7 – 10/8 1988	D4 7 048/VII-48 Discharge trench in the 'home yard' – area of 0,25 hectare for the cultivation of vegetables and fruits - in the transmigration area Telang, Musi Delta, South Sumatra. 24/7 – 10/8 1988
			
D4 7 049/VII-49 Dischatge point of the trench in the 'home yard' – area of 0,25 hectare for the cultivation of vegetables and fruits - in the transmigration area Telang, Musi Delta, South Sumatra. 24/7 – 10/8 1988	D4 7 050/VII-50 Newly constructed road drain along an access road in the transmigration area Telang, Musi Delta, South Sumatra. 24/7 – 10/8 1988	D4 8 003/VIII-3 Excavated soil from a newly excavated road drain spread over the access road in the transmigration area Telang, Musi Delta, South Sumatra. 24/7 – 10/8 1988	D4 8 006/VIII-6 Rice field in the transmigration area Saleh, Musi Delta, South Sumatra. 24/7 – 10/8 1988

Table V. Pictures of polders and lowlands in Indonesia by Prof. Bart Schultz (continued)

			
D4 8 009/VIII-9 Demonstration of the operation of a weir with a vertical gate in a field canal in the transmigration area Telang, Musi Delta, South Sumatra. 24/7 – 10/8 1988	D4 8 011/VIII-11 Manual maintenance of a tertiary canal in the transmigration area Telang, Musi Delta, South Sumatra. 24/7 – 10/8 1988	D4 8 012/VIII-12 Excavation of a fishpond near a house in the transmigration area Telang, Musi Delta, South Sumatra. 24/7 – 10/8 1988	D4 8 015/VIII-15 Children pose for a shop in the transmigration area Telang, Musi Delta, South Sumatra. 24/7 – 10/8 1988
			
D4 8 016/VIII-16 Access to the house of a local governor in the transmigration area Telang, Musi Delta, South Sumatra. 24/7 – 10/8 1988	D4 8 026/VIII-26 Maintenance of a primary canal in the transmigration area Saleh, Musi Delta, South Sumatra. 2 - 24/7 1989	D4 8 029/VIII-29 Sorjan system in the transmigration area Saleh, Musi Delta, South Sumatra. 2 - 24/7 1989	D5 9 011/IX-11 House along secondary canal at low tide in the transmigration area Telang, Musi Delta, South Sumatra. 28/7 – 19/8 1989

Table V. Pictures of polders and lowlands in Indonesia by Prof. Bart Schultz (continued)

			
D5 9 013/IX-13 Preparation and storage of prefab elements for the weirs in the tertiary canals in the transmigratie areas in the Misu delta, South Sumatra. 28/7 – 19/8 1989	D6 11 015/XI-15 Bank protection along a primary canal in the transmigration area near Banjarmasin in Kalimantan. 23/11 – 1/12 1995	D6 12 008/XII-8 Discharge sluice in a large canal in South Kalimantan. 11 – 18/7 1998	D6 12 010/XII-10 Provisonal bridge in a transmigration area in South-Kalimantan. 11 – 18/7 1998
			
D6 12 011/XII-11 Pumping station in a transmigration area in South-Kalimantan. 11 – 18/7 1998	D6 12 012/XII-12 Newly excavated secondary canal in a transmigration area in South-Kalimantan. 11 – 18/7 1998	D6 12 017/XII-17 Weir in a newly excavated secondary canal in a transmigration area in South-Kalimantan. 11 – 18/7 1998	D6 12 019/XII-19 Staff gauge at a crossing of a newly excavated secondair canal in a transmigration area in South-Kalimantan. 11 – 18/7 1998

Table V. Pictures of polders and lowlands in Indonesia by Prof. Bart Schultz (continued)

			
D6 12 021/XII-21 Weir in a newly excavated secondary canal in a transmigration area in South-Kalimantan. 11 – 18/7 1998	D6 12 024/XII-24 Discharge sluice in a large canal in South Kalimantan.11 – 18/7 1998	D6 12 028/XII-28 Bridge over a newly excavated secondary canal in a transmigration area in South-Kalimantan. 11 – 18/7 1998	D6 12 033/XII-33 Construction of a discharge sluice in a large canal in South Kalimantan. 11 – 18/7 1998
			
114_1427 Kali Sunter, the canal where part of the excess water of the Kelapa Gading Polder is being pumped out. 1 April 2006	114_1430 Trash rack in front of one of the pumping stations that pump the excess water of Kelapa Gading Polder to Kali Sunter. 1 April 2006	114_1433 Discharge point of the pumping stations that pump out the excess water of Kelapa Gading Polder to Kali Sunter. 1 April 2006	114_1437 Water withdrawal from Kali Sunter. 1 April 2006

Table V. Pictures of polders and lowlands in Indonesia by Prof. Bart Schultz (continued)

			
114_1438 View on Kali Sunter. 1 April 2006	114_1439 Gates at the discharge point of a pumping station that pumps out the water of Kelapa Gading Polder to Kali Sunter. 1 April 2006	114_1442 Polluted water and bank erosion in Kali Sunter. 1 April 2006	114_1443 Pollution in front of a culvert in one of the canals of the Kelapa Gading Polder. 1 April 2006
			
114_1447 Storage pond for the separated part of the polder that is under responsibility of the navy. 1 April 2006	114_1451 Vegetation in a canal in the Kelapa Gading polder. 1 April 2006	114_1454 Houses along the canal along the east side of Kelapa Gading Polder. 1 April 2006	114_1455 Drain along the central boulevard in the Kelapa Gading Polder. 1 April 2006

Table V. Pictures of polders and lowlands in Indonesia by Prof. Bart Schultz (continued)

			
114_1456 Trash rack in front of a culvert in Kelapa Gading Polder. 1 April 2006	114_1459 Drain in Kelapa Gading Polder. 1 April 2006	114_1460 Vertical gate in a drain in Kelapa Gading Polder. 1 April 2006	114_1462 Water hyacints in the drain to Kali Pertukangan. 1 April 2006
			
114_1465 Polluted urban drain in Kelapa Gading Polder. 1 April 2006	114_1467 Culverts at the downstream side of a drain in Kelapa Gading Polder. 1 April 2006	114_1468 Mobile pump along a storage pond in Kelapa Gading Polder. 1 April 2006	IMG_3287 Cleaned tertiary canal in the example area in Telang II. 2 June 2012

Table V. Pictures of polders and lowlands in Indonesia by Prof. Bart Schultz (continued)

			
IMG_3290 Explanation to students of Sriwijaya University in the example area in Telang II. 2 June 2012	IMG_3295 Jetty in the primary canal in the Telang II area. 2 June 2012	IMG_3301 Group picture in front of the newly built market place in the Telang II area. Forth from right Prof. Robiyanto Susanto, third from right Prof. Bart Schultz. The others are staff members of Sriwijaya University. 2 June 2012	IMG_3302 Jetty in the primary canal in the Telang II area. 2 June 2012
			
IMG_3309 New house in the Telang II area. 2 June 2012	IMG_3311 Material for the construction of pavement for the first to be paved local road in the lowlands in the Musi Delta. 2 June 2012	IMG_3316 New house in the Telang II area with a provision for obtaining swallow nests, a delicacy. 2 June 2012	IMG_3318 New government building in the Telang II area. 2 June 2012

Table V. Pictures of polders and lowlands in Indonesia by Prof. Bart Schultz (continued)

			
IMG_3322 Vertical gate in a canal to a storage pond in Palembang. 6 June 2012	IMG_3323 Storage pond in Palembang. 6 June 2012	IMG_3326 Cleaning activities in a storage pond in Palembang. 6 June 2012	IMG_3330 Canal in Palambang. 6 June 2012
			
IMG_3331 Outlet of a pumping station in Palembang with two lorries for the discharge of rubbish that has been removed from a canal. 6 June 2012	IMG_3335 Separation of rubbish near a recreation pond in the new urban quarter Jakabaring of Palembang. 6 June 2012	IMG_3891 Inlet for a pumping station of one of the polders in Jakarta. 25 September 2012	IMG_3893 Storage pond for the pumping station of one of the polders in Jakarta. 25 September 2012

Table V. Pictures of polders and lowlands in Indonesia by Prof. Bart Schultz (continued)

			
IMG_3896 Discharge canal to a storage pond. This canal has insufficient discharge capacity compared to the capacity of the pumping station to pump the water to the storage pond. 25 September 2012	IMG_3898 Staff gauge at the inlet of a pumping station of one of the polders in Jakarta. 25 September 2012	IMG_3899 Concrete wall to prevent flooding from the mouth of a river near the Java Sea. 25 September 2012	IMG_3905 House and rubish in the mouth of a river near the Java Sea. 25 September 2012
			
IMG_3917 Concrete wall to prevent flooding from the mouth of a river near the Java Sea. 25 September 2012	IMG_3921 Boats at the mouth of a river near the Java Sea. 25 September 2012	IMG_3923 Heap of rubish in front of a discharge sluice at the mouth of a river near the Java Sea. 25 September 2012	IMG_3930 Discharge sluice towards a river in Jakarta. 25 September 2012

Table V. Pictures of polders and lowlands in Indonesia by Prof. Bart Schultz (continued)

			
IMG_3933 Pumping station in one of the canals in Jakarta where the water is pumped out to a river. 25 September 2012	IMG_3939 Canal towards a storage basin in Jakarta. 25 September 2012	IMG_3941 Rubish remover in front of the inlet of a pumping station in a polder in Jakarta. 25 September 2012	IMG_3945 Pollution in a canal in Jakarta. 25 September 2012
			
IMG_3950 Removal of rubish in front of an outlet of one of the canals in Jakarta. 25 September 2012	IMG_3953 Outlet of a pumping station in a canal in Jakarta. 25 September 2012	IMG_3958 Outlet of a canal near a storage basin in Jakarta. 25 September 2012	IMG_3966 Mobile pumps in a storage in Jakarta. 25 September 2012

Table V. Pictures of polders and lowlands in Indonesia by Prof. Bart Schultz (continued)

			
IMG_3968 Storage basin in Jakarta. 25 September 2012	IMG_3973 Cleaning drums in front of the inlets of a pumping station for a storage basin in Jakarta. 25 September 2012	IMG_3979 Aerating installation in front of the outlet of water from and urban quarter near the storage basin in Jakarta. 25 September 2012	IMG_3992 Buildings in the higher part of a storage basin in Jakarta. 25 September 2012
			
IMG_3995 Canal in Jakarta. 25 September 2012	IMG_4005 Canal with a concrete wall to prevent flooding. 25 September 2012	IMG_4010 Storage basin and discharge canal of the Setia Budi Barat pumping station. 25 September 2012	IMG_4012 Name plate Setia Budi Barat pumping station. 25 September 2012

Table V. Pictures of polders and lowlands in Indonesia by Prof. Bart Schultz (continued)

	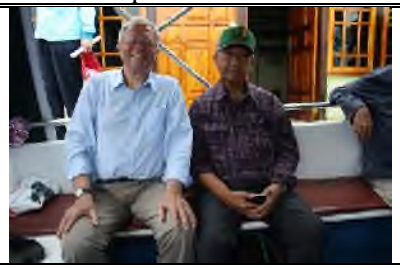		
IMG_5948 Boat taxis in front of a restaurant on the bank of the Musi River, South Sumatra. 7 May 2014	IMG_5954 Mr. Suparmono, former Director-General Water Resources and Prof. Bart Schultz. 7 May 2014	IMG_5961 Building in the Telang I area, Musi Delta South Sumatra. 7 May 2014	IMG_5963 Discharge and inlet sluice in the mouth of a secondary canal in the Telang I area, Musi Delta, South Sumatra. 7 May 2014
			
IMG_5965 Explanation of the system by Prof. Robiyanto H. Susanto at the discharge and inlet sluice in the mouth of a secondary canal in the Telang I area, Musi Delta, South Sumatra. 7 May 2014	IMG_5967 Houses and a building for the cultivation of swallow nests along a secondary canal in the Telang I area, Musi Delta, South Sumatra. 7 May 2014	IMG_5971 Enlarged tertiary canal in the Telang I area, Musi Delta, South Sumatra. 7 May 2014	IMG_5972 Group picture in front of a banner at the beginning of an access road near rice fields in the Telang I area, Musi Delta, South Sumatra. 7 May 2014

Table V. Pictures of polders and lowlands in Indonesia by Prof. Bart Schultz (continued)

			
IMG_5973 Tertiary canal and access road near rice fields in the Telang I area, Musi Delta, South Sumatra. 7 May 2014	IMG_5981 Secondary canal in the Telang I area, Musi Delta, South Sumatra. 7 May 2014	IMG_5983 Lunch in a tent during the field visit of the INACID Seminar near the Telang I area. Second of left Mr. Saiful Mahdi, aside him Prof. Bart Schultz. 7 May 2014	IMG_5990 Masonry house and motor cycles in the Telang I area, Musi Delta South Sumatra. 7 May 2014
			
IMG_5992 The first truck in the Telang I area in front of the building near the jetty. 7 May 2014	IMG_5995 Boats at the bank of primary canal 6 in the Telang I area. 7 May 2014	IMG_2432 View at Semarang River from the outlet of the old quarter Kota Lama. 16 November 2015	IMG_2440 Pumping station of the polder Tawang on which the old quarter of Semarang Kota Lama is located. 16 November 2015

Table V. Pictures of polders and lowlands in Indonesia by Prof. Bart Schultz (continued)

			
IMG_2441 Discharge canal in the old quarter Kota Lama of Semarang. 16 November 2015	IMG_2444 Inlet to and outlet from the Tawang Storage Basin. 16 November 2015	IMG_2446 Tawang Storage Basin near the railway station of Semarang. 16 November 2015	IMG_2448 Information plate with the characteristic data of the drainage system of the old quarter Kota Lama of Semarang 16 November 2015
			
IMG_2454 Vertical gates at the inlet of the right branch of the Semarang River that has been closed off near the mouth. 16 November 2015	IMG_2455 Pumping station behind the inlet of the right branch of the Semarang River that has been closed off near the mouth. This pumping station also pumps out the excess water of the old quarter Kota Lama of Semarang. 16 November 2015	IMG_2458 View at the Semarang River from the branching point in upstream direction. 16 November 2015	IMG_2469 Damaged and polluted canal in a housing area in Semarang. 16 November 2015

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IMG_2472 Newly built pumping station in the mouth of the Semarang River. 16 November 2015	IMG_2473 Construction of bank protection and a jetty in the closed off mouth of the Semarang River with in the background the newly built pumping station. 16 November 2015	102_0299 Boats at and buildings along the Musi River, South Sumatra. 25 January 2005	103_0303 Secondary canal at high tide in the Saleh Area, Musi Delta, South Sumatra. 25 January 2005
			
103_0307 Activities for the construction of a provisional dam in a secondary canal in the Saleh Area. 25 January 2005	103_0314 Structure to control the discharge of and supply to a secondary canal in the Saleh Area, Musi Delta, South Sumatra. 25 January 2005	103_0318 Movable fiberglas flapgate for the control of the discharge of and water supply to a tertiary canal in the Saleh Area, Musi Delta, South Sumatra. 25 January 2005	103_0321 Masonry house in the Saleh Area. 25 January 2005

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103_0332 Tertiary canal between rice fields in the Telang I area. 25 January 2005	103_0336 Field canal along a rice field in the Telang I area. 25 January 2005	103_0342 Inspection of the movable fiberglas flapgate for the control of the discharge of and water supply to a tertiary canal in the Telang I area. 25 January 2005	103_0343 Inspection of the movable fiberglas flapgate for the control of the discharge of and water supply to a tertiary canal in the Telang I area. 25 January 2005
			
103_0350 Farmer Supir, poses with his wife and sons in front of his house in the Telang I area. 25 January 2005	103_0352 Stone house in the Telang I area. 25 January 2005	103_0358 Shops at a central location in the Telang I area. 25 January 2005	103_0362 Water control structure at high tide for the control of the discharge of and water supply to a secondary canal in the Telang I area, Musi Delta, South Sumatra. 27 January 2005

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103_0370 Visit to a bridge over a secondary canal that has been constructed by the local population. 27 January 2005	103_0374 Access road with a masonry house in the Telang I area. Transport of the harvest to the jetty for the further transport over water. 27 January 2005	103_0376 Masonry house in the Telang I area. 27 January 2005	103_0379 High tide in a secondary canal in front of the structure for the control of the discharge of and water supply to a secondary canal in the Telang I area. 27 January 2005
			
107_0717 Low tide at a structure for the control of the discharge of and water supply to a secondary canal in the Telang I area. 1 August 2005	107_0724 Nice house in Telang I area. 1 August 2005	107_0726 Renovated steel Bridge over a primary canal in the Telang I area. 1 August 2005	107_0728 Provisorional dam in a secondary canal in the Saleh Area at low tide. 1 August 2005

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107_0732 Characteristic Bridge in Palembang over the Musi River. 1 August 2005	107_0740 Visit to a weir with a movable fiberglas flapgate for the control of the discharge of and water supply to a tertiary canal in the Saleh area. 2 August 2005	107_0742 Visit to a weir with a movable fiberglas flapgate for the control of the discharge of and water supply to a tertiary canal in the Saleh area. 2 August 2005	107_0747 Secondary canal in the Saleh Area at low tide. 2 August 2005
			
107_0749 Prepared rice field in the Saleh Area. 2 August 2005	107_0750 House with a drum to collect roof water. 2 August 2005	107_0751 Posing in a maizefield in the Saleh Area. Person left unknown, then Ir. Ad of den Eelaart, Prof. Robiyanto H. Susanto, Dr. F.X. Suryadi, Prof. Bart Schultz. 2 August 2005	107_0758 Issuing of certificates to the new chairmen of the water users associations in respectively the Saleh Area and two parts of the Telang I area. 4 August 2005

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107_0765 Name plate of the Wetland-lowland and Coastal Area Data and Information Centre in Palembang. 4 August 2005	107_0769 Building of the Wetland-lowland and Coastal Area Data and Information Centre in Palembang. 4 August 2005	113_1386 Visit to a water control structure for the control of the discharge of and water supply to a secondary canal in the Telang I area, Musi Delta, South Sumatra. Left Dr. F.X. Suryadi, right a farmer from the area. 27 March 2006	113_1389 Storage of rice near a rice mill in the Telang I area. 27 March 2006
			
113_1397 Properly constructed weir with a movable fiberglas flapgate for the control of the discharge of and water supply to a tertiary canal in the Telang I area. 27 March 2006	113_1402 Bridge over the mouth of a secondary canal near a primary canal in the Telang I area. In the background a structure for the control of the discharge of and water supply to a secondary canal. 27 March 2006	113_1407 Tertiary canal along a rice field in the Telang I area. 27 March 2006	113_1409 Delivery of rice at a drying installation. 27 March 2006

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113_1411 House for the receipt of rice at a drying installation. 27 March 2006	113_1412 Building in the Telang I area in which there are drying installations for rice. 27 March 2006	113_1416 Installations for the drying of rice. 27 March 2006	113_1420 Statue aan the entrance of Srimulyo village, Telang I area, District Banyuasin. 27 March 2006
			
113_1426 Bridge over a primary canal in the Telang I area. 27 March 2006	118_1809 Visit to the pilot area of the project Sustainable Development of Tidal Lowlands in South-Kalimantan. 24 August 2006	118_1811 Crossing of a primair and a secondary canal in a transmigration area in South-Kalimantan. 24 August 2006	118_1818 Nice rice field in a transmigration area in South-Kalimantan. 24 August 2006

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118_1821 Vertical gates in a canal in South-Kalimantan. 24 August 2006	118_1826 Group picture in South-Kalimantan. Second from the right Prof. Bart Schultz, left aside of him Dr. F.X. Suryadi – UNESCO-IHE. 24 August 2006	118_1827 Harvested oranges in a transmigration area in South-Kalimantan. 25 August 2006	118_1831 Secondary canal and road in a transmigration area in Zuid-Kaliamantan. 25 August 2006
			
120_2086 High tide in a secondary canal in the Sambas area in West Kalimantan. 9 January 2007	120_2090 Structure for water supply to and discharge from a tertiary canal in in the Sambas area in West Kalimantan. 9 January 2007	120_2097 Secondary canal in the Sambas area in West Kalimantan. 9 January 2007	121_2103 Meeting with farmers in the Pontianak area in West Kalimantan. 10 January 2007

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121_2106 Track along rice fields and a inlet and discharge strucutre in the Pontianak area in West Kalimantan. 10 January 2007	121_2108 Open field drain for the drainage of a 'home yard' – area around the house for the cultivation of vegetables and fruits - in the Pontianak area in West Kalimantan. 10 January 2007	121_2109 Secondary canal in the Pontianak area in West Kalimantan. 10 January 2007	121_2118 Tekarang Village in the Pontianak area in West Kalimantan. 10 January 2007
			
121_2119 Government building of Tekarang in the Pontianak area in West Kalimantan. 10 January 2007	121_2141 Nice house in the Telang I area, Musi Delta, South Sumatra. 12 January 2007	121_2143 Visit to a weir with a movable fiberglas flapgate for the control of the discharge of and water supply to a tertiary canal in the Telang I area, Musi Delta, South Sumatra. Left Ir. Ad of den Eelaart, right Prof. Robiyanto H. Susanto. 12 January 2007	121_2145 Concrete Bridge over a primary canal in the Telang I area, Musi Delta, South Sumatra. 12 January 2007

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121_2150 Illuminated Bridge in the evening over the Musi River in Palembang, South Sumatra. 12 January 2007	127_2752 Secondary canal at low tide in the Telang I area, Musi Delta, South Sumatra. 28 June 2007	127_2754 Kepik insect that is damaging for the rice. 28 June 2007	127_2758 Election poster for the election of the Head of the District Banyuasin. Mr. Amiruddin Inoed was originally agricultural extension officer and has done a lot of good work for the agriculture in the district. Hij has been elected with an enormous majority. 28 June 2007
			
127_2759 The chairman (Mr. Cipto, right) of the water users association in the area of Telang I, bordering primary canal 6, with the first prize for best water ussers association. 28 June 2007	127_2760 The house of Mr. Cipto, chairman of the water users association in the area of Telang I, bordering primary canal 6. 28 June 2007	127_2779 Wall along the east Banjir canal of Semarang to prevent flooding. 4 July 2007	127_2787 Bridge over the Banger River in Semarang at high tide. The Banger Polder is located at the east side of Semarang. Due to the discharge of the Banger River in 2016 the area was still in open connection with the Java Sea. 4 July 2007

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127_2791 Waterlogging in the Banger Polder in Semarang along the Banger River. 4 July 2007	127_2794 Wall to prevent flooding along the Banger River in Semarang at high tide. The Banger Polder is located at the east side of Semarang. Due to the discharge of the Banger River in 2016 the area was still in open connection with the Java Sea. 4 July 2007	128_2801 Pumping station along the Banger River to pump out local water from the weatern part of Banger Polder. 4 July 2007	128_2809 Open drain in Banger Polder, Semarang. 4 July 2007
			
128_2815 Pumping station for the pumping out of water from Semarang to the Eastern Banjir Canal. 4 July 2007	128_2819 Damaged bridge over a river in the Pontianak area, West Kalimantan. 7 July 2007	128_2820 Inadequately maintained primary canal in peatland in the Pontianak area, West Kalimantan. 7 July 2007	128_2823 Information to farmers over the pilot project to improve the water management in a secondary block - about 250 hectares - in the Pontianak area, West Kalimantan. Left in front Martijn Elzinga, staff member of the Civil Engineering Department of Rijkswaterstaat. 7 July 2007

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128_2825 Processing of maize in the pilot project - about 250 hectares - in the Pontianak area, West Kalimantan. 7 July 2007	128_2833 Tertiary canal with coconut palms and maize fields in the pilot project - about 250 hectares - in the Pontianak area, West Kalimantan. 7 July 2007	128_2836 Improved track with trenches along maize fields in the pilot project - about 250 hectares - in the Pontianak area, West Kalimantan. 7 July 2007	128_2838 Mr. Arnoud Haag, staff member of Euroconsult inspects the soil at a reclaimed maize field in the pilot project - about 250 hectares - in the Pontianak area, West Kalimantan. Right Martijn Elzinga, Civil Engineering Department of Rijkswaterstaat. 7 July 2007
			
128_2844 Structure with a very damaged vertical gate for the discharge of water. 7 July 2007	128_2855 Nursery for rice in the Sambas area, West Kalimantan. 8 July 2007	128_2860 Group picture with some local people in the pilot project - about 250 hectares - in the Sambas area, West Kalimantan. In the back row left Ir. Ad Van den Eelaart, Prof. Bart Schultz and Ir. Martijn Elzinga. 8 July 2007	IMG_3025 Newly excavated tertiary canal in the Sambas area, West Kalimantan. 19 November 2007

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IMG_3026 Hydraulic crane for the excavation of a primary canal in the Sambas area, West Kalimantan. 19 November 2007	IMG_3028 Weir with different options for water supply to or discharge of water from a tertiary canal in the Sambas area, West Kalimantan. 20 November 2007	IMG_3036 Construction of a structure for water supply to or discharge of water from a secondary canal in the Sambas area, West Kalimantan. 20 November 2007	IMG_3040 Meeting in the field in the Sambas area, West Kalimantan. At the head of the table the head of the Sambas District. 20 November 2007
			
IMG_3044 Speech in the field by the Head of the Sambas District, West Kalimantan. Right of him Mr. Erwin Rafaje, in the Ministry of Public Works responsible for operation and maintenance of lowland systems. Aside of him Mr. Arnoud Haag, Euroconsult. 20 November 2007	IMG_3050 Warehouse for the tractor for the maintenance of canals that has been delivered in the framework of the project Strengthening Tidal Lowland Development. 22 November 2007	IMG_3055 Ir. Martijn Elzinga, staff member of the Civil Engineering Department, Rijkswaterstaat poses with an Indonesian farmer in the Telang I area. 22 November 2007	IMG_3060 The tractor that was delivered in the framework of the project Strengthening Tidal Lowland Development in front of the access gate of the village. 22 November 2007

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20241017_122521 Welcome at the inlet structure of the main canal of Dadahup Polder	20241017_123125 Upstream side of the inlet structure at the upstream side of the main canal through the Dadahup Polder	20241017_123412 Main canal upstream of Dedahup Polder, seen from the inlet structure	20241017_123841 Downstream side of the inlet structure at the upstream side of the main canal through the Dadahup Polder
			
20241017_124656 Automatic water level recorder at the inlet structure of the Dadahup Polder	20241017_131010 Main canal in Dedahup Polder, seen from the inlet structure at the upstream side	20241017_131044 Preparation of rice fields at the upstream side of Dadahup Polder	20241017_131058 Preparation of rice fields at the upstream side of Dadahup Polder

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20241017_155808 Mengkatip River in upstream direction at on of the connection point with a secondary canal in the Dadahup Polder	20241017_155818 Mengkatip River in downstream direction at on of the connection points with a secondary canal in the Dadahup Polder	20241017_155722 Bridge over the Mengkatip River	20241017_154904 Inlet and outlet of a secondary canal in the Dadahup Polder at the Mengkatip River
			
20241017_155024 Secondary canal in the direction of the inlet and outlet of the secondary canal in the Dadahup Polder at the Mengkatip River	20241017_155005 Secondary canal from the inlet and outlet of the secondary canal in the Dadahup Polder to the Mengkatip River in the direction of the Mengkatip River	20241017_155047 Main drain between the inlet and outlet of the secondary canal in the Dadahup Polder at the Mengkatip River and the Mengkatip River	20241017_132146 Inlet and outlet structure in a secondary canal at the side of the main canal of Dadahup Polder

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20241017_132203 Open air fruitstore. Beginning of economic activity in Dadahup Polder	20241017_132446 Secondary canal from the inlet and outlet structure in the direction of the main canal of Dadahup Polder	20241017_132509 Road along the secondary canal from the inlet and outlet structure in the direction of the main canal. In the background some preliminary buildings and hydraulic cranes for reclamation of Dadahup Polder	20241017_132647 Staff gauge at the inlet and outlet structure in the secondary canal in the direction of the main canal of Dadahup Polder
			
20241017_132822 Inlet and outlet structure at the inside of a secondary canal in Dadahup Polder	20241017_132832 Secondary canal in Dadahup Polder	20241017_132855 Landscape in Dadahup Polder with a tertiary canal in front and hydraulic cranes for reclamation of Dadahup Polder at the background	20241017_132907 Landscape in Dadahup Polder with a tertiary canal and road

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20241017_133019 Landscape in Dadahup Polder with a tertiary canal and in the background some preliminary buildings and hydraulic cranes for reclamation of Dadahup Polder	20241017_133213 Staff gauge at the inner side of the inlet and outlet structure of a secondary canal in Dadahup Polder	20241017_141809 Display of the Ministry of Public Works and companies involved in the reclamation of Dadahup Polder	20241017_141928 Office building of the Ministry of Public Works in Dadahup Polder
			
20241017_142001 Office buildings at the compound of the Ministry of Public Works in Dadahup Polder	20241017_144505 Display and meeting building in Dadahup Polder	20241017_144800 Ripening rice fields in Dadahup Polder	20241017_145639 Display of the activities in Dadahup Polder

Table V. Pictures of polders and lowlands in Indonesia by Prof. Bart Schultz (continued)

			
20241017_145856 Inlet and outlet structure of a tertiary canal in Dadahup Polder at the side of the secondary canal	20241017_145913 Tertiary canal in Dadahup Polder	20241017_150011 Inlet and outlet structure of a tertiary canal in Dadahup Polder at the side of the tertiary canal	20241017_150057 Staff gauge at the inside of the inlet and outlet structure of a tertiary canal in Dadahup Polder at the side of the tertiary canal
			
20241017_150105 Staff gauge at the inside of the inlet and outlet structure of a tertiary canal in Dadahup Polder at the side of the tertiary canal	20241017_150655 Structure for opening and closing the inlet and outlet structure of a tertiary canal in Dadahup Polder		