

## Greenhouse comes to Banjarmasin: A Call for Assistance to the Developing World<sup>1, 2</sup>

By Owen Main Podger

Let us consider the plight of Banjarmasin, in Kalimantan, Indonesian. Each year the local government submits to Bappenas, the central planning board of the Republic of Indonesia, its capital expenditure proposals for the following year. Each fifth year it submits a proposal for the city's Repelita, or five-year plan. Despite injection of special funds from the World Bank, Japan, and elsewhere, it gets less than it believes it deserves.

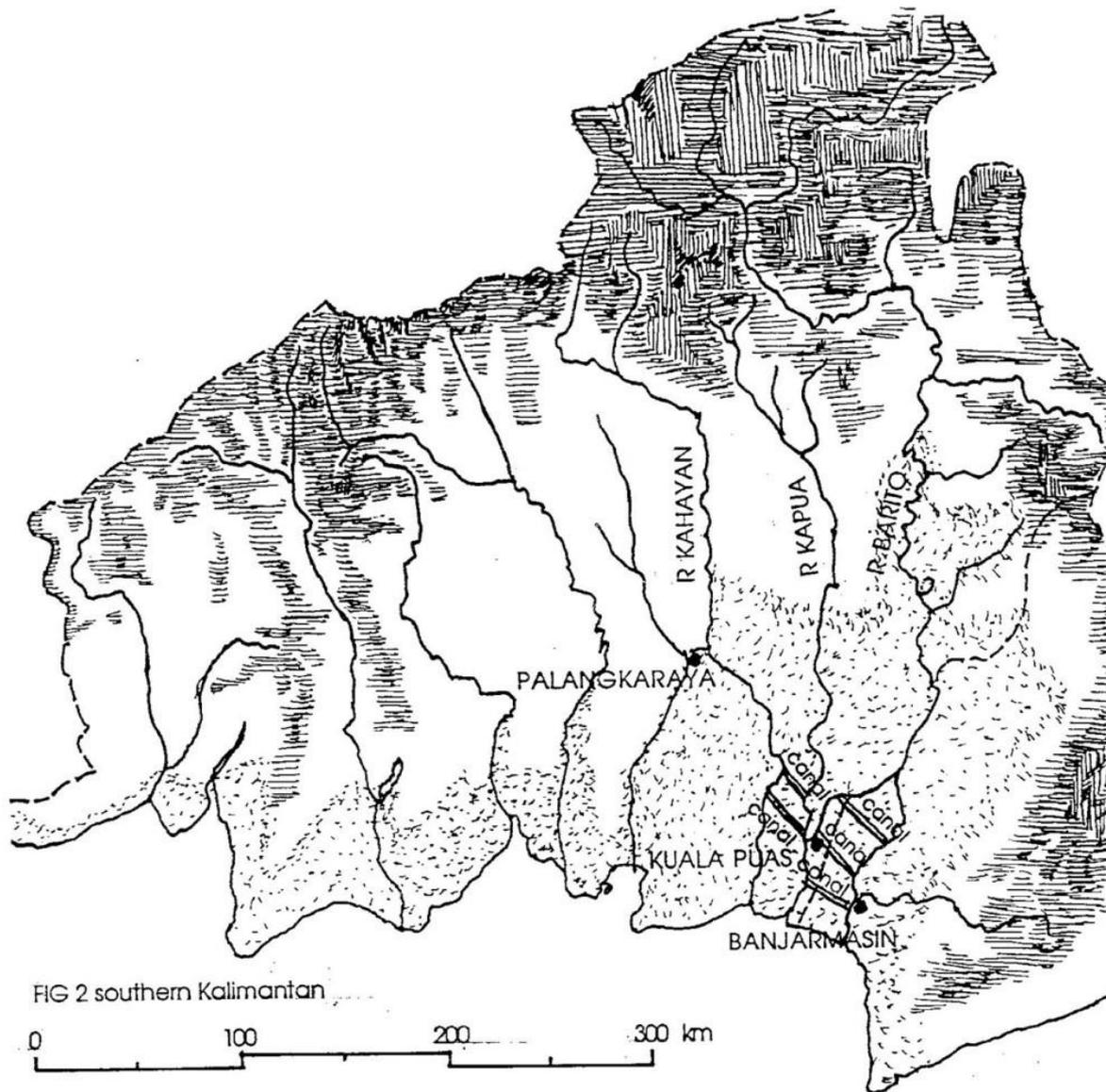


FIG 1 Banjarmasin in Southeast Asia

Let us look briefly at the region of South and Central Kalimantan in the island we know as Borneo (Fig 2). It consists largely of wetlands and mountainous jungles, with wetlands extending up to 200 km inland. Roads are few and expensive to maintain. The swamp is crisscrossed by rivers and canals.

<sup>1</sup> Second Editions are previously published papers that have continued relevance in today's project management world, or which were originally published in conference proceedings or in a language other than English. Original publication acknowledged; authors retain copyright. This paper was a discussion paper originally presented at Greenhouse 88 Project: Planning for Climatic Change, Sydney Public Forum, November 5, 1988. It is republished here with the author's permission.

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Banjarmasin is the principal city of the region, a city of some 400,000 people living in the swamp on the bank (not that it can really be called a bank, see Fig 3) of the mighty Barito River. It is the major port to the south coast of Kalimantan and some 30 km from the coast.

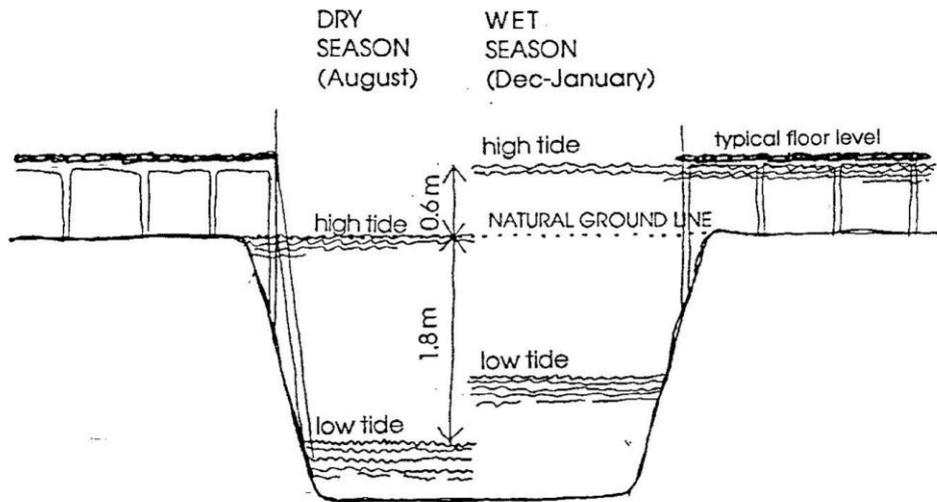


FIG 3 Water levels in Banjarmasin Pre-Greenhouse

There is a grand history of planning in Banjarmasin. The city was established in 1526 as an outpost of an indigenous empire. It took till 1860 for the Dutch to establish control and they built it like Amsterdam, with bold canals and avenues, a clean and beautiful city. They also built canals through the swamp, opening up the mysterious Dayak hinterland. Then in 1942, Banjarmasin was raised by the Dutch as they retreated from the invading Japanese, who removed trees from avenues. The Allies bombed the occupying Japanese destroying much of what was left. Finally the city was looted after the war in the Independence Movement. What was left was a poor shadow for its former glory.

A city in a swamp needs higher than average investment. Some say that Indonesia cannot afford to restore Banjarmasin. "Leave the swamp" they say. But the river is in the blood of the Banjar, Dayak and East Javanese people who have lived there for centuries. Their culture revolves around the water that washes beneath the front doors of their houses (Fig 4).

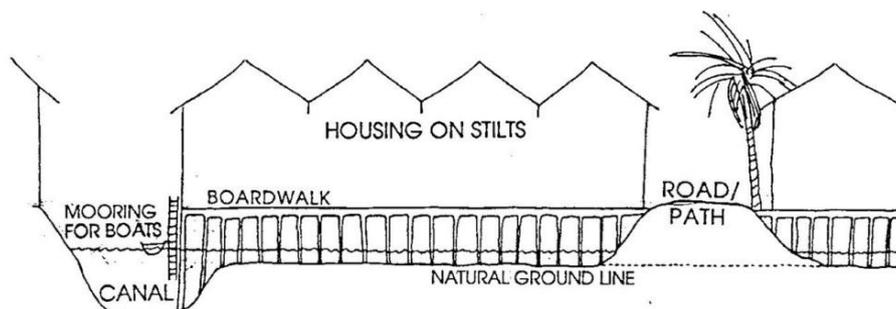


FIG 4 Traditional Housing beside canals

Modern economic development has fought against instead of with the nature of the swamp, describing those who hang on to tradition as "kuno" and "kampungan", old-fashioned country-bumkins.

Banjarmasin's problems can be summarised as follows:

**Densities are high.** In the swamp there are few school yards, back yards, or open spaces. Suburban densities reach over 500 people per hectare, twice the density of our densest three-storey walk-up suburbs, but living in timber houses.

**Dry land must be created.** As the natural ground level is below the high-tide mark in monsoon season (return to Fig 3), dry land is created. The classic model is the use of dykes and polders (Fig 5), to pump water out and dry out ground below the water line. This requires large funds, powerful land-acquisition laws, and great political conviction, all of which are hard to come by.

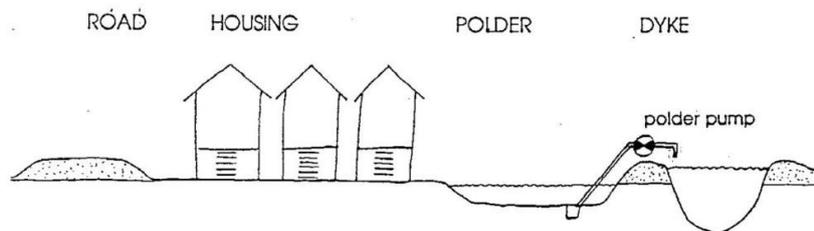


FIG 5 Dyke and polder system creates dry land below high-tide level

The common approach in modern Banjarmasin is by digging holes in the swamp adjacent to where the dry land is wanted (Fig 6), but it leaves pock-holes across the urban landscape. Without careful supervision of where soil is dug from, land can easily be stolen from neighbours.

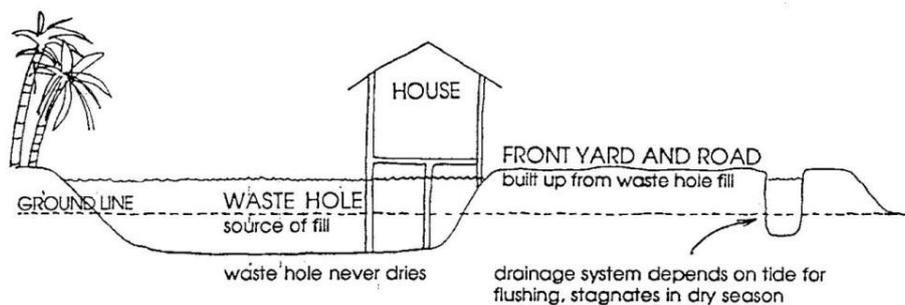


FIG 6 Typical "modern" home with pond and drainage channels that easily become health hazards

**Land sinks.** With only mud beneath, anything heavy will slowly sink. Some roads have sunk half a metre a year.

**Fire is a major hazard.** Timber is the only practical building material, being light. Fire can quickly destroy 500 homes, and does so regularly.

**Dry season is a health hazard.** The city is dead -flat, the floor-level of every home within centimetres of the peak high tide mark. When there is no rain, water stagnates. Only in the main canals does the tide move the water. The incoming tide washes pollution upstream and it will return again on the change of tide, twice a day.

**Roads replace canals.** As in all modern road-oriented development, the building of roads is considered mandatory. Bridges are built that are not high enough for barges and boats to pass under at high tide. As water-traffic is inhibited, the demand for roads increases and the demand to maintain the canal system decreases. Roads also block the flow of water, leading to worsening floods.

**The poor live on the lowest ground.** The poor can least afford to build up their home-sites. They can least afford the extra timber to raise their floors above the high-tide mark. Despite investment in Kampung Improvement Programmes, still many people live in houses that regularly flood and are surrounded by polluted water.

The swamp is considered a major national asset. Great effort has been placed on developing wetland agriculture, as one facet of the Government's Transmigration policy to reduce the population pressures in Java and Bali. I assume also that the wetlands are part of a delicate ecological system, of global significance.

Now comes Greenhouse. What does Greenhouse mean to the mighty Barito River? When will we know for sure?

Here is the Greenhouse Dilemma. If money is not spent on development, things can only get worse. If money is spent, it may be soon wasted. The closer to the monsoon flood level, the worse the present predicament and lower the return on investment.'

I have described the plight of the city of Banjarmasin. It should not be by-passed until some "reliable" environmental modelling is carried out in a decade or so.

It deserves the highest priority for study now, and needs special sympathy now for both its current and future plight.

Banjarmasin is typical of nearly every city in Kalimantan, and cities, towns and suburbs throughout Java, Sumatera, Irian Jaya, Papua New Guinea, Thailand, Burma, Vietnam, India, Pakistan, China, Philippines, wherever there are settlements that are built in wetlands. Parts of Bangkok remain flooded at high tide for four months of every year. And of course there is Bangladesh, where 25 million gave up their homes to floods last year, and 50 million this year.

Not only river-delta settlements face the Greenhouse Dilemma. I could well have described the problems faced by coastal villages. The Pacific and Southeast Asia contain more coastline per capita than anywhere else on earth. A major proportion of the population is dependent on the fragile and generally worsening coastal economy. While we know that Tuvalu and Kiribati may vanish completely, so will the habitats of a major proportion of the population of the entire region. The Greenhouse Dilemma has two corollaries. The first is this. When we draw the line between what is to be defended and what is to be abandoned, what do we plan and invest below that line? Is there such a thing as planned abandonment?

And Greenhouse Corollary Two, the face of the Greenhouse Dilemma to be confronted continually until our climate stabilises. Do we make decisions now while there is a risk of short-term failure? Do we invest despite lower rates of returns and higher risks? Or do we let things continue to decline from the present tragic situation until more definitive projections of change can reduce the risks but probably increases the area abandoned and the numbers who will suffer?

Greenhouse will affect Australia so little compared with those parts of the world that are perhaps the least to be blamed. Australia with its affluence, scientific capacity, and diplomatic standing, is well-placed to help our neighbours cope with, and plan for, the Greenhouse Effect.

Our Government is to be commended in raising the matter at the recent South Pacific Forum, where it offered aid in monitoring the Greenhouse Effect. An Interdepartmental Committee has been set up to prepare a cabinet submission on Global Warming, to be chaired by the Department of Foreign Affairs and Trade. This is a good neighbourly start.

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A lot more action by Australia and Australians is called for. May I suggest the following:

1 **Environmental Impact Statements**, including the impact of climatic change, are needed on all Australian Aid project proposals. Under considerable international pressure, development agencies are only just beginning to require proper EIS's. AIDAB, the Australian International Assistance Bureau, is presently considering proposals for preparing EIS's for its projects. AIDAB should not bow to bureaucratic pressures to reduce EIS's to superficial formulae. EIS's must be scientifically rigorous.

2 Almost every discipline needs to change its methodologies to cope with changing climate. **Aid for education** should give special emphasis to aiding professions in the region develop and study these emerging methodologies.

3 Joint research to monitor and model climatic change should be encouraged between Australian scientists and counterparts throughout our region. Australia has offered aid to the Pacific to monitor Greenhouse and I trust some of our scientists have begun to work with our neighbours on proposals to put this aid to proper and effective use.

4 Projects in vulnerable locations should be given priority, despite the risk of throwing the money away. The principle should be to help those most in need. Too easily the Bangladeshes and Bajarmasins of our world will be left to decay while planners and politicians debate whether to defend or abandon. The places most likely to suffer must be given the highest priority for study, higher than studies of our own environment.

5 Most of all, I hope Australian foreign policy-makers make exerted effort to be **compassionate and supportive** of nations most likely to suffer from the Greenhouse Effect, and their poorest people who invariably suffer the most; assisting them materially, and becoming their champion in matters of justice.

The author wishes to thank Fiona Pfennigwerth for illustrations.

## About the Author



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**Owen Podger** began his career as an architect at Taronga Zoo in Sydney, studied urban design at UCLA and construction management at UNSW. After a career in urban development in Australia and Indonesia, and in academia in Singapore and Papua New Guinea, he has advised the Indonesian government on reforms since the downfall of Soeharto. He was planning adviser to the Aceh and Nias Rehabilitation and Reconstruction Agency (BRR), and supported the Aceh Government in establishing its special autonomy. More recently he has advised the Indonesian Senate on drafting laws on local government, the office of the Vice President of Indonesia on effectiveness of government, and Indonesia's national planning agency on urban development policy and programs. Owen is now assisting a small USA-Indonesia firm to develop capability in advising on public governance and accountability, and currently is living in Badung, Bali, Indonesia.

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