BRAZIL'S TRANSAMAZON HIGHWAY SETTLEMENT
SCHEME: AGROVILAS, AGROPOLI, AND RUROPOLI

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In 1970, the Brazilian government embarked on a project effectively to occupy the "demographic void" of the world's largest tropical rain forest, covering 5 million km² of the Amazon basin. The pioneer Transamazon road, cutting 3,000 km across the southern Interfluvies of Amazonia (Fig. 1), is to serve as the main axis for settlement and integration of the North. Both in scale and expenditure, the Transamazônica is the most ambitious government-directed colonization scheme ever attempted in the lowland tropics. By 1976, plans call for settling 100,000 families on 600,000 km² expropriated along the road.

Only recently has the Brazilian government taken active measures to integrate the Amazon with more developed regions. Until the opening of the Belém-Brasilia highway in 1966, the Brazilian Amazon was inaccessible by road. Under PIN (Programa de Integração Nacional), the government proposes that 15,000 km of pioneer highways will serve as the main integrating links for the region. The Transamazônica, completed in 1974, functions as the east-west axis in the PIN highway network.

A major factor in the decision to build the Transamazônica and associated PIN highways is the concern of the Brazilian government for security of the region. Reis (1960), for example, has stressed the dangers of international consciousness of the resource-rich but sparsely-settled Brazilian Amazon. However, the 1970 drought which seared the backlands of the Northeast, uprooting an estimated 2 million people, was the triggering factor in President Medici's decision to initiate construction of the Transamazon. The highway was envisaged as a safety valve for the over-populated, drought-plagued Nordeste by providing an outlet for the Northeast's 30 million people, increasing by 1 million a year. The two-lane highway would also create an avenue for filling the "empty space" of the Brazilian Amazon, a region of 8 million people occupying 59 percent of the national territory.

TRANSAMAZON SETTLEMENT SCHEME

In order to prevent speculation and to control colonization, the government expropriated a 100 km wide zone along both sides of the pioneer highway. INCRA (Instituto Nacional de Colonização e Reforma Agrária) or an organ of the Ministry of Agriculture, has divided a 20km-wide strip along the Anguassia-Itaituba stretch of the highway into 100 ha. lots for distribution to incoming colonists. Much of the remaining 90 percent of public lands is being subdivided into lots ranging in size from 3000 to 66,000 ha. for sale to private companies. Along the Macapá-Itaituba stretch, for example, 3.7 million ha. of forest is being cleared for cattle ranches.

To encourage settlement, INCRA offers the 100 ha. lots for U.S. $700 payable over twenty years. Some settlers are also provided with four-
room wooden houses at an additional cost of U.S. $100, also payable over two decades. All colonists receive a loan distributed in six monthly install- ments to buy basic necessities until the first crops are sold. Credit through Banco do Brasil is avail- able to hire labor and to purchase agricultural equipment.

According to INCRA plans, the settlement pattern is to be dominated by the agrofolha, a government-built community of forty-eight to sixty-six houses located every 10 km. along the main highway and side-roads. Each agrofolha, arranged around a common square, is designed to contain a medical post, primary school, govern- ment-run general store (COBAL), as well as offices of the agrarian extension service (ACAR) and INCRA. Colonists are encouraged to build their own economical churches and social centers.

The agropolis, a community for up to 1,000 families, is next in the urban-rural hierarchy. Agropoli, to be built every 100 km, are designed as intermediate administrative centers equipped with a secondary school, hospital, light industry and warehouses. The agropoli, at the apex of the rural-urban hierarchy, is to serve as administrative headquarters for a radius of 200 km. It is pro- jected that agropoli will house up to 20,000 in- habitants each and offer expanded services such as trade schools, banks, hotels, and an airport (INCRA, 1972a, 1973).

PROGRESS OF COLONIZATION, 1970–1975

It seems unlikely that the original goal of set- tling 106,000 families by 1976 will be reached. As of December, 1974, 5,717 families had been settled by INCRA along the highway. Since the average family size of settlers is six, the population of government-sponsored colonists is 34,300. How- ever, there is a significant additional population of migrant workers, squatters, and government

Fig. 1. The Brazilian Amazon highway system, 1975.
employees which account for an estimated 33 percent of the total highway population. Thus the population density of the 45,600 in the 20 km-wide agricultural zone is 1.3 persons per km². Although government plans call for a Transamazon population that is at least 75 percent Nordestino (INCRA, 1972b), the representation of Nordestineros in the highway population is declining. In December, 1972, Nordestinos ac- counted for 67 percent of the population; how- ever, by June, 1974, the proportion had decreased to 45 percent. Even if all the Transamazon settlers were Northeasterners, the highway would absorb only 0.5 percent of the annual increase of the region's population.

Although the urbanismo-rural project calls for an agroville to be built every 10 km, along the highway and side-roads, as of December, 1974, only twenty-seven were completed. Of the twenty-seven agrovilas, eight are equipped with privies and four with piped ground-water. The occupancy rate of three agrovilas surveyed along the highway averaged 45 percent while that of side-road communities appeared even less. In spite of the amenities of the agroville, settlers prefer to live on their lots.

A total of three of the fifteen agropoli planned for the Estreito-Itaituba stretch of the highway have been completed while two more are sched- uled for imminent construction. None of the agropoli house the projected 1,000 families. One agropoli is under construction at the junction of the Transamazon and Cuíabá-Santarcem highways.

REASONS FOR DEMISE OF URBANISMO-RURAL

The overriding desire of colonists to live close to their fields is the principal reason why they generally prefer to live on their lots, even if this means building their own houses. Not only are time inputs increased in agro-ecosystems, thereby increasing productivity; crops can be more easily transported to the house for consumption and storage. Vigilance over crops, especially in the case of rice and maize, is required in order to reduce losses to pests.

Another major reason why settlers prefer to live on their lots is that domestic animals can also be more effectively protected against predators. Since fencing is not provided in agrovilas, the raising of domestic animals is discouraged by officials in the interests of community harmony. Chickens and pigs are notorious for dismantling unattended back-yard gardens. Chickens cannot be left un-
aboriginal custom of defeating in the forest, where there is a rich coprophagous beetle fauna, and of maintaining water courses in forest, reduces the morbidity of gastro-intestinal disease.

While agrovilas along the highway were built with priests, the majority of settlers are not accustomed to using them. Children defecate promiscuously in backyards while adults generally prefer the discretion of a banana or maize patch. Since few coprophagous Coleoptera are adapted to disturbed habitats (Howden and Nealis, 1975), the probability of feces contaminating drinking water is increased. Thus the mere provision of toilets is insufficient—the populace must be motivated to use them.

A further advantage of Arara villages is that they are located on relatively flat surfaces, thereby minimizing erosion. The estimated 200 Agrovilas live in two main malocces and four smaller lean-to structures occupying approximately 0.5 ha. However, an agrovila housing up to 300 residents sprawls over 25 ha. Since the Transamazon transect is generally undulating, in spite of the deceptive evenness cover, soil erosion is a problem in most agrovilas.

Another defect of agrovila design is that the distances between houses reduce cohesion within the community. Since most agrovila pracas were left in forest or have reverted to second growth, the common square impedes rather than fosters communication. The extensive layout of INCRA communities discourages social interaction, especially during the rainy season when streets are a quagmire.

The high roof design of Arara malocces not only repels rain but reduces heat radiation on the inhabitants. In contrast, the low roof design of INCRA houses incubates interior heat during the day. The dark interior of the Arara communal house would also discourage the diurnal biting attacks of the numerous black flies (Simulium sp.) during the rainy season. Besides creating a nuisance, the strongly anthropophilic flies are responsible for a hemorrhagic syndrome (Pinheiro et al., 1974) and are potential vectors for onchocerciasis. Families frequently migrate from the Transamazon during the rainy season since the porous and well-lit interiors of INCRA and peasant houses offer no respite from the flies.

CONCLUSION

A plea is not being made that Transamazon settlers immediately adopt indigenous designs for communal houses. The cultural heterogeneity of colonists would preclude a malocce life style. However some of the adaptive features of the native settlement pattern could have been incorporated in the highway settlement scheme. The Transamazon serves as another example of development planners attempting to impose projects alien to the cultural and ecological conditions of the region. The right urbanismo-rural scheme was based on a theoretical geometric pattern rather than on practical necessities such as flat surfaces for building, proximity to potable water, and fertile soils.

REFERENCES CITED

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