

# Rajang Batang

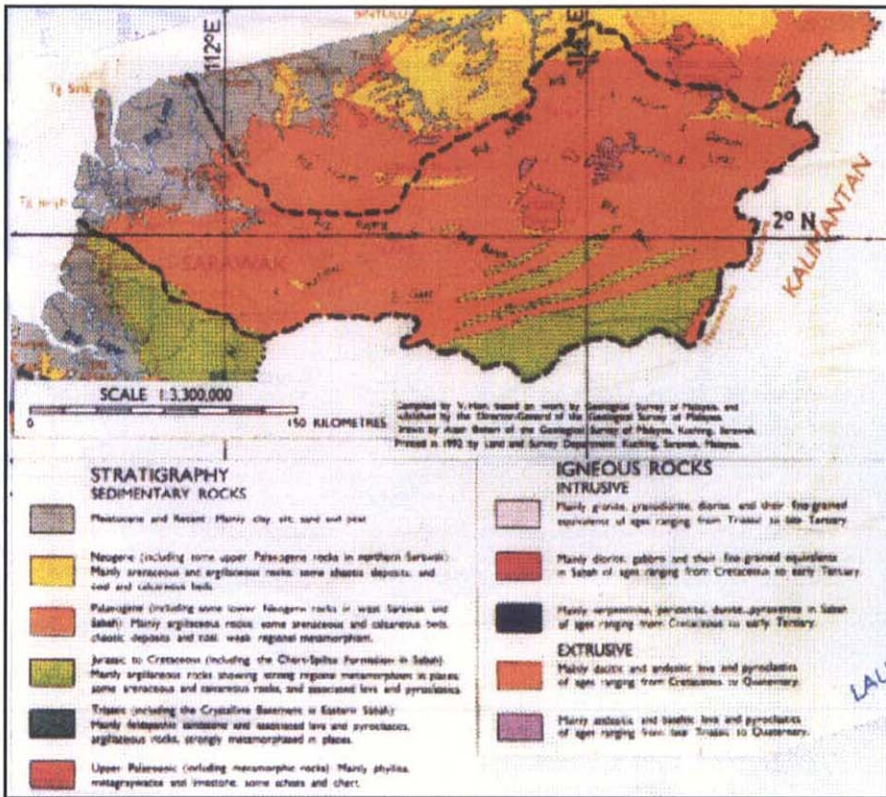
## Map of River



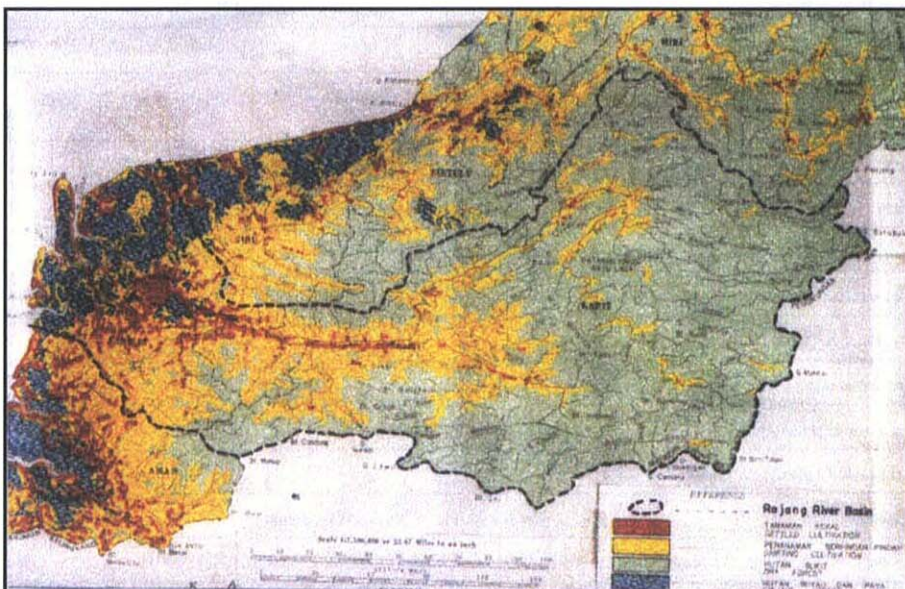
## Table of Basic Data

|  |  |                              |
|--|--|------------------------------|
| <b>Name:</b> Rajang River  |  | <b>Serial No.</b> Malaysia-1 |
| <b>Location:</b> Central Sarawak, Malaysia   | N 1° 4' 52" ~ 3° 21' 37"   | E 111° 9' 28" ~ 115° 14' 19" |
| <b>Area:</b> 50 707 km <sup>2</sup>  | <b>Length of main stream:</b> 432 km (up to confluence with Balui River) |                              |
| <b>Origin:</b> Mt. Makati (1 360 m)  | <b>Highest point:</b> Mt. Tiban (2 074 m)                                |                              |
| <b>Outlet:</b> South China Sea   | <b>Lowest point:</b> River mouth (0 m)                                   |                              |
| <b>Main geological features:</b> Palaeogene-eocene; sandstone, shale, slate  |  |                              |
| <b>Main tributaries:</b> Baleh River (12 416 km <sup>2</sup> ), Balui (15 354 km <sup>2</sup> ), Belaga River (2 907 km <sup>2</sup> ) |  |                              |
| <b>Main lakes:</b> None  |  |                              |
| <b>Main reservoirs:</b> None   |  |                              |
| <b>Mean annual precipitation:</b> 3 820 mm (up to 1992) (Basin average)  |  |                              |
| <b>Mean annual runoff:</b> 2 510 m <sup>3</sup> /s at Kapit (1983~1990)  |  |                              |
| <b>Population:</b> 419 320 (1991)  | <b>Main cities:</b> Sibü, Sarikei, Kapit                                 |                              |
| <b>Land use:</b> Forest (97.28%), Rice paddy (0.95%), Other agriculture (1.65%), Urban (0.12%) (1991)                                  |  |                              |

2. Geographical Information  
2.1 Geological Map



2.2 Land Use Map



## 1. General Description

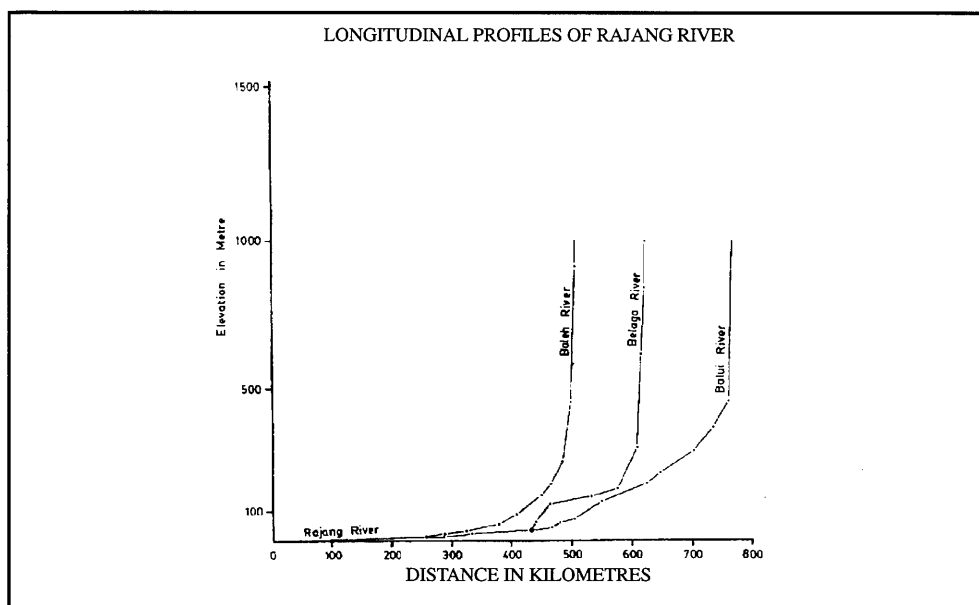
The Rajang which has a catchment area of 50 707 km<sup>2</sup>, is the longest river (432 km) in Sarawak, a state of Malaysia. It originates from Mt. Makati (1 360 m) and runs through the central part of Sarawak before discharging out into the South China Sea. The basin area is in the tropical rain forest and has an average annual precipitation of 3 820 mm. The mean annual discharge at Kapit (34 053 km<sup>2</sup>) has been 2 510 m<sup>3</sup>/s (1983~1990). The river segments above Belaga and above Kapit in the Baleh River are considered the upper remote areas, and consist of mountains and a plateau (Usun Apau). In these mountainous areas, the population is small (71 846 in 1991). Despite the vast area of 30 677 km<sup>2</sup>, the cultivation consists of small plots of hill paddy. The middle segment (Sibu to Kapit) is also mountainous with rubber plantations, pepper vine, cocoa beside the cultivation of hill paddy. The lower part of the basin (below Sibu) consists of low siltland (delta basin) with rubber, pepper vine, cocoa, and citrus fruit as the main plantations. The basin population in 1991 has been 419 320.

### 2.3 Characteristics of River and Main Tributaries

| No. | Name of river          | Length [km]<br>Catchment area [km <sup>2</sup> ] | Highest peak [m]<br>Lowest point [m] | Cities<br>Population (1991)          | Land use [%]<br>(1991) |
|-----|------------------------|--|--------------------------------------|--------------------------------------|------------------------|
| 1   | Rajang<br>(Main River) | 432<br>20 030                                    | Mt. Mubau, 1 442<br>-----            | Sibu, Kapit Sarikei, etc.<br>396 751 | A (1.5)<br>F (97.28)   |
| 2   | Baleh<br>(Tributary)   | 241<br>12 416                                    | Mt. Tibau, 2 074<br>-----            | (Population included in No. 1)       | O (0.1)<br>P (0.95)    |
| 3   | Balui<br>(Tributary)   | 341<br>15 354                                    | Mt. Makati, 1 360<br>-----           | Belaga                               | U (0.1)                |
| 4   | Belaga<br>(Tributary)  | 192<br>2 907                                     | Usun Apau West, 1 220<br>-----       | 22 569                               |                        |

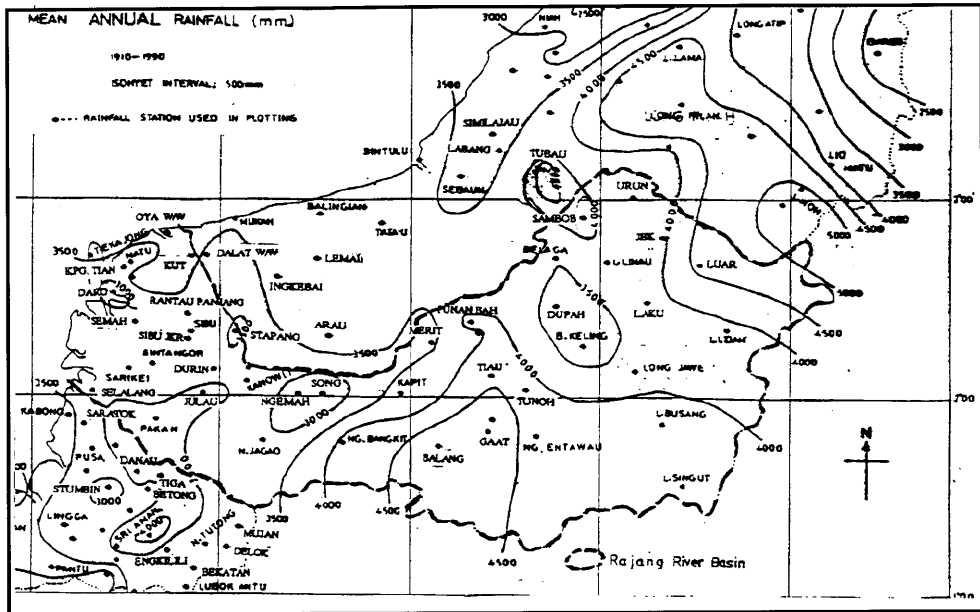
A: Other agricultural field F: Forest O: Orchard P: Paddy field U: Urban

### 2.4 Longitudinal Profiles



### 3. Climatological Information

#### 3.1 Annual Isohyetal Map and Observation Stations



Based on data from Hydrology Branch, Department of Irrigation and Drainage, Sarawak, Malaysia.

#### 3.2 List of Meteorological Observation Stations

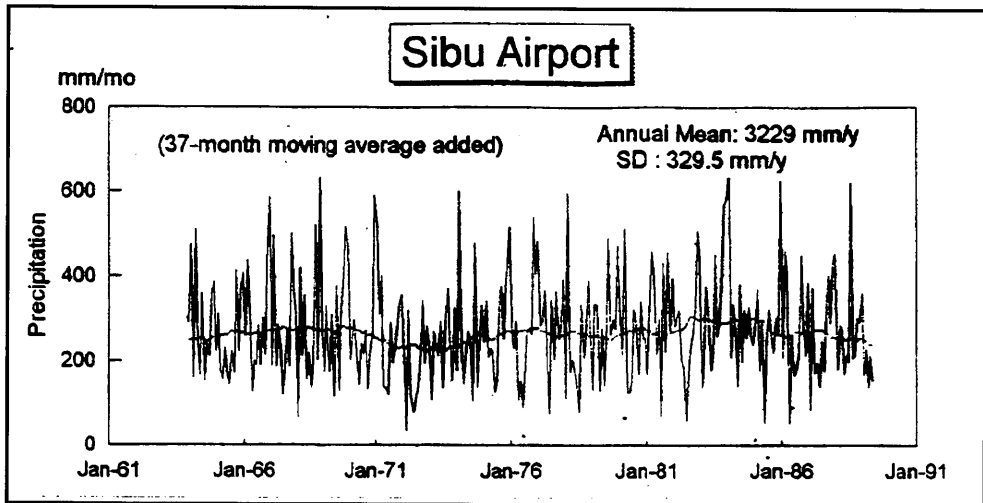
| Station No.* | Station Name  | Elevation [m] | Location                       | Observation period | Mean annual precipitation [mm] | Observation item |
|--------------|---------------|---------------|--------------------------------|--------------------|--------------------------------|------------------|
| 1544001      | Long Singut   | 290           | N 1° 34' 20"<br>E 114° 26' 00" | 1980~1992          | 4 465                          | P (TB)           |
| 1726041      | Nanga Bangkit |               | N 1° 46' 10"<br>E 112° 38' 05" | 1964~1992          | 4 143                          | P (TB)           |
| 1731001      | Nanga Balang  | 80            | N 1° 45' 40"<br>E 113° 09' 55" | 1986~1992          | 4 935                          | P (TB)           |
| 1816029      | Pakan         |               | N 1° 53' 50"<br>E 111° 40' 25" | 1963~1992          | 3 610                          | P (TB)           |
| 1836042      | Nanga Entawau | 80            | N 1° 49' 20"<br>E 113° 40' 35" | 1964~1992          | 4 316                          | P (TB)           |
| 2013001      | Selalang      |               | N 2° 00' 50"<br>E 111° 21' 45" | 1983~1992          | 3 411                          | P (TB)           |
| 2025012      | Song          |               | N 2° 00' 40"<br>E 112° 32' 50" | 1950~1992          | 2 630                          | P (TB)           |
| 2029002      | Kapit NHW     | 20            | N 2° 01' 00"<br>E 112° 56' 50" | 1986~1992          | 3 512                          | P (TB)           |
| 2218017      | Sibujkr       |               | N 2° 15' 30"<br>E 111° 50' 35" | 1911~1992          | 3 255                          | P (TB)           |
| 2333001      | Punan Bah     | 60            | N 2° 23' 05"<br>E 113° 20' 40" | 1986~1992          | 4 001                          | P (TB)           |
| 2346001      | Long Lidam    | 515           | N 2° 20' 15"<br>E 114° 38' 50" | 1980~1992          | 3 557                          | P (TB)           |

3.2 List of Meteorological Observation Stations (Continued)

| Station No.* | Station Name | Elevation [m] | Location                       | Observation period | Mean annual precipitation [mm] | Observation item |
|--------------|--------------|---------------|--------------------------------|--------------------|--------------------------------|------------------|
| 2615009      | Matu         | 2             | N 2° 40' 40"<br>E 111° 31' 45" | 1935~1992          | 3 082                          | P (TB)           |
| 2737103      | Belaga       | 40            | N 2° 42' 28"<br>E 113° 46' 46" | 1970~1992          | 3 541                          | P (TB)           |
| 2843001      | Long Jek     | 520           | N 2° 48' 35"<br>E 114° 19' 05" | 1987~1992          | 3 961                          | P (TB)           |
| 3041002      | Long Urun    | 200           | N 3° 01' 00"<br>E 114° 11' 40" | 1986~1992          | 3 620                          | P (TB)           |

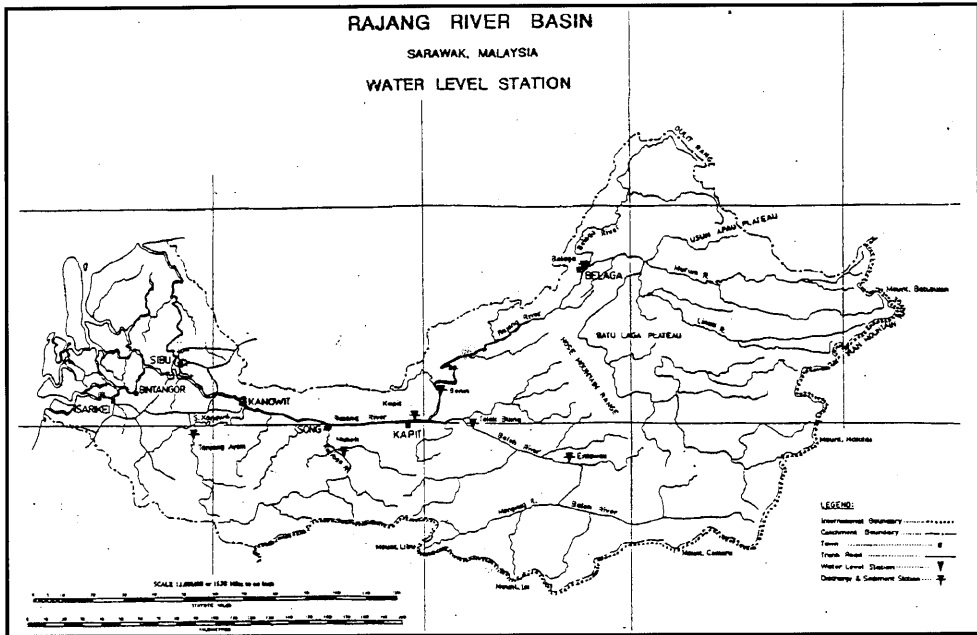
\*: Serial Number used by Hydrology Branch, Department of Irrigation & Drainage, Sarawak, Malaysia.  
 P: Precipitation TB: Tipping Bucket with recording chart.

3.4 Long-term Variation of Monthly Precipitation



## 4. Hydrological Information

### 4.1 Map of Streamflow Observation Stations



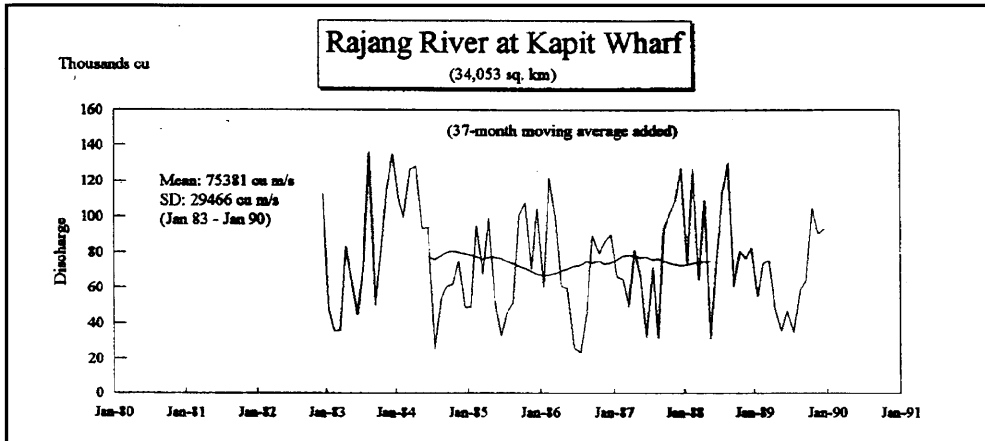
### 4.2 List of Hydrological Observation Stations

| No.*    | Station        | Location                      | Catchment area (A)<br>[km <sup>2</sup> ] | Observation period | Observation items <sup>1)</sup><br>(frequency) |
|---------|----------------|-------------------------------|--|--------------------|--|
| 1826401 | Mukeh, Nanga   | N 1° 50' 50"<br>E112° 37' 45" | 2 273                                    | 1979~1990          | Q(3m)  |
| 1836401 | Entawau, Nanga | N 1° 49' 20"<br>E113° 40' 35" | 6 422                                    | 1989~1990          | Q(3m)  |
| 1918401 | Tanjong Ayam   | N 1° 56' 40"<br>E111° 53' 55" | 1 587                                    | 1987~1990          | Q(3m)  |
| 1932408 | Telok Buing    | N 1° 59' 50"<br>E113° 13' 20" | 9 522                                    | 1965~1990          | Q(3m)  |
| 2029401 | Kapit Wharf    | N 2° 01' 05"<br>E112° 56' 30" | 34 053                                   | 1971~1990          | -----  |
| 2130405 | Benin, Nanga   | N 2° 09' 55"<br>E113° 04' 10" | 21 273                                   | 1966~1990          | Q(3m)  |
| 2737413 | Belaga         | N 2° 42' 50"<br>E113° 46' 50" | 18 261                                   | 1966~1990          | Q(3m)  |

\*: Serial number used by Hydrology Branch, Department of Irrigation and Drainage, Sarawak, Malaysia.

1): Q: Discharge; 3m: 3-monthly

4.3 Long-term Variation of Monthly Discharge



Note: Data from Jan 1983 - Jan 1990, after this the record is not complete.

4.6 Annual Maximum and Minimum Discharges

At Kapit Wharf [34 053 km<sup>2</sup>]

| Year | Maximum |                     | Minimum |                     | Year | Maximum |                     | Minimum |                     |
|------|---------|---------------------|---------|---------------------|------|---------|---------------------|---------|---------------------|
|      | Date    | [m <sup>3</sup> /s] | Date    | [m <sup>3</sup> /s] |      | Date    | [m <sup>3</sup> /s] | Date    | [m <sup>3</sup> /s] |
| 1971 | 8.26    | 9 034               | 5.11    | 643.9               | 1982 | 6.01    | 6 723               | 7.05    | 630.8               |
| 1972 | 11.21   | 6 398               | 1.19    | 776.9               | 1983 | 9.17    | 10 799              | 7.30    | 305.2               |
| 1973 | 6.03    | 7 994               | 1.29    | 694.0               | 1984 | 1.04    | 8 546               | 8.20    | 367.8               |
| 1974 | 9.25    | 7 070               | 3.25    | 663.8               | 1985 | 5.27    | 8 297               | 7.07    | 367.8               |
| 1975 | 7.24    | 6 954               | 6.29    | 745.4               | 1986 | 3.18    | 7 141               | 8.22    | 457.5               |
| 1976 | 5.05    | 6 946               | 6.04    | 640.6               | 1987 | 12.17   | 6 900               | 7.11    | 443.0               |
| 1977 | 2.28    | 6 885               | 9.06    | 745.4               | 1988 | 8.24    | 7 872               | 7.30    | 694.0               |
| 1978 | 12.24   | 7 671               | 7.26    | 643.9               | 1989 | 12.27   | 5 470               | 8.09    | 627.5               |
| 1979 | 11.22   | 7 024               | 5.26    | 643.9               | 1990 | 11.04   | 7 408               | 7.11    | 704.1               |
| 1980 | 10.18   | 7 188               | 9.14    | 673.8               | 1991 | 2.04    | 6 503               | 8.19    | 798.1               |
| 1981 | 1.14    | 7 188               | 8.15    | 643.9               | 1992 | 6.15    | 7 503               | 6.30    | 766.3               |

Note: All instantaneous observation by manual reading

## 5.4 Major Floods

| Date                      | Rainfall [mm]<br>Duration          | Meteorological<br>cause | Dead and<br>missing | Major damages<br>(Districts affected)                                  |
|---------------------------|------------------------------------|-------------------------|---------------------|--|
| 1963. 1.04<br>~1963. 2.28 | 975<br>(1.01~2.28)                 | Northeast Monsoon       | 4                   | Public utilities and agricultural losses. Kanowit, Song, Kapit, Belaga |
| 1971. 8.19<br>~1971. 8.24 | 171<br>(8.13~8.25)                 | -----                   | -----               | Disruption of road communication. Kanowit, Song, Kapit, Belaga         |
| 1979. 1.04<br>~1979. 1.08 | 356<br>(1.04~1.08)                 | Northeast Monsoon       | -----               | Disruption of road communication. Kanowit, Song, Kapit, Belaga         |
| 1983. 9.17<br>~1983. 9.20 | 75<br>(9.14~9.21)                  | -----                   | 3                   | Disruption of road communication. Kanowit, Song, Kapit, Belaga         |
| 1983.12.29<br>~1984. 1.01 | 243<br>(1983.12.26~<br>1984. 1.03) | -----                   | -----               | Disruption of road communication. Kanowit, Song, Kapit, Belaga         |

## 6. Socio-cultural Characteristics

The Rajang River is rich in cultural heritage. The River is the main mode of communication for all communities living along it. It has also, in the past, provided a means of segregation and protection for some communities through rapids and falls. There are six major communities living in the catchment. Most Malay communities are in the coastal area and fishermen by nature. The Chinese communities who are mostly engaged in trade are in the main towns along the river. The Iban are mainly in the hilly areas. The Kayan and Kenyah communities are in the mountainous areas. Most of these communities are engaged in agricultural farming. The Penan occupy the most interior and live on hunting and collecting jungle products.

## 7. References, Data Books and Bibliography

- Department of Agriculture (1991): *Agricultural statistics of Sarawak*, Sarawak. (Section 2.3)
- Department of Irrigation and Drainage, *Hydrological data*, compiled by Hydrology Branch, Kuching, Sarawak, Malaysia.
- Department of Statistics Malaysia (1992): *Yearbook of statistics*, Sarawak Branch. (Table of Basic Data, 2.3)
- Geological Survey of Malaysia, *Geological map*, Kuching, Sarawak.
- Land and Survey Department, *Topography and land use maps*, Sarawak. (Table of Basic Data, 2.3)