

UNITED  
NATIONS

**E**



**Economic and Social Council**

Distr.  
LIMITED  
E/CONF.92/BP.13  
11 April 2000

ORIGINAL: ENGLISH

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FIFTEENTH UNITED NATIONS REGIONAL  
CARTOGRAPHIC CONFERENCE FOR ASIA  
AND THE PACIFIC

Kuala Lumpur, 11-14 April 2000  
Item 9(m) of the provisional agenda\*

TECHNICAL COOPERATION PROGRAMMES OF JAPAN  
FOR GEOGRAPHIC INFORMATION ACROSS THE ASIA-PACIFIC REGION

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\* E/CONF.92/INF/1

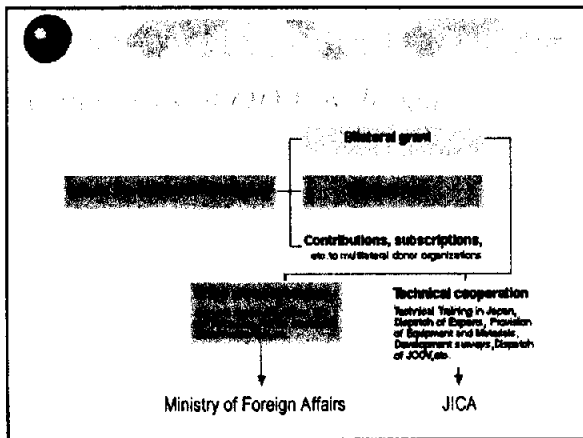
15th UNRCC-AP, Kuala Lumpur

April 13, 2000

Technical cooperation  
programs in the area  
of geographical information  
systems in Asia and the Pacific

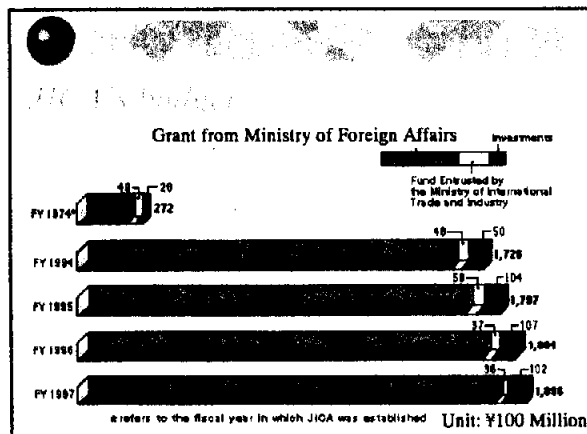
Read by  
Shoichi Matsumura,  
Geographical Survey Institute, Japan

- ❖ Framework of Japan's Technical Cooperation
- ❖ Programs in Surveying and Mapping
- ❖ Examples in Asia and the Pacific
  - ❖ Social development studies in Cambodia
    - 1) Mapping for Angkor Archaeological Area
    - 2) GIS data development in the Mekong River Basin in Cambodia



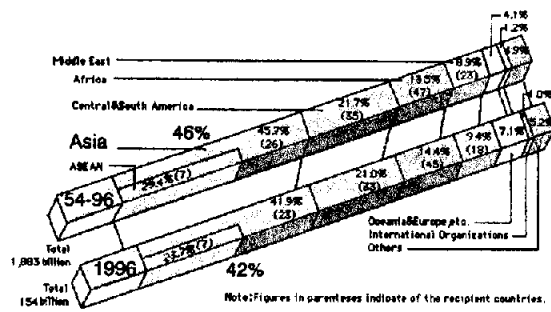
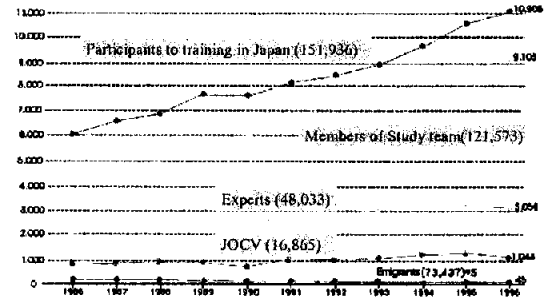
Japan International Cooperation Agency

- ❖ Semi-governmental organization responsible for the technical cooperation aspect of Japan's ODA
- ❖ Carries out programs to transfer technology and knowledge that supports socioeconomic development of developing countries
  - ❖ under the guidance of Ministry of Foreign Affairs
- ❖ 1,200 staff members in and outside Japan



- ❖ **Technical Cooperation**
- ❖ Dispatch of Japan Overseas Cooperation Volunteers(JOCV)
- ❖ Training and Recruitment of Qualified Personnel for Technical Cooperation
- ❖ Survey and Administration of Grant Aid Programs
- ❖ Development Investment and Financing
- ❖ Support for Japanese Emigrants
- ❖ Disaster Relief

1. Training in Japan
2. Dispatch of Experts
3. Provision of Equipment
4. Project-type Technical Cooperation  
(= 1 + 2 + 3)
5. Development Study



### Training in Japan

- Started in 1963
- Accepted 725 person by 1998
- Current training courses:

| Title                 | Month | Supported by |
|-----------------------|-------|--------------|
| Surveying and Mapping | 11    | GSI          |
| Global Mapping        | 2.5   | JHD          |
| Hydrographic Survey   | 7     | JHD          |
| Nautical Charting     | 4     | JHD          |
| Remote sensing        | 1.5/2 | RESTEC       |

- Dispatch of Experts to NMOs from GSI
  - Long term experts: 46 person since 1975
  - Short term experts: 213 person since 1964
- Provision of Equipment
  - Bangladesh (1999-2000)
    - Offset printing machine, GPS receivers
- Project-type Technical Cooperation
  - Establishment of Kenya Institute of Surveying and Mapping (1995-2001)

### Background

- Maps provide basic information for making national development policies and planning.
- The lack of such information delays the development of nations.
- Started overseas mapping projects in 1971
- Mapped 1,310,000 km<sup>2</sup> in 30 countries
- Emphasis on technical transfer

### Mapping by District

| Country                     | District           | Scale    | Area(km <sup>2</sup> ) | Year      |
|-----------------------------|--------------------|----------|------------------------|-----------|
| <b>&lt; Paper Maps &gt;</b> |                    |          |                        |           |
| Indonesia                   | Barito River Basin | 1:50,000 | 19,300                 | 1971-1974 |
| Philippines                 | Cagayan Valley     | 1:25,000 | 11,200                 | 1978-1982 |
|                             | (Photomap)         | 1:10,000 | 300                    |           |
| Indonesia                   | Negara River Up.   | 1:50,000 | 6,500                  | 1983-1985 |
| Philippines                 | Metro Manila       | 1:10,000 | 1,500                  | 1985-1988 |
|                             | (Thematic)         | 1:10,000 | 823                    |           |
| Thailand                    | Bangkok Metro.     | 1:10,000 | 2,000                  | 1986-1988 |
|                             |                    | 1:4,000  | 300                    |           |
| Nepal                       | Lumbini Zone       | 1:25,000 | 9,000                  | 1990-1993 |
| Laos                        | Bolikhamxai        | 1:25,000 | 13,000                 | 1992-1995 |
| Mongolia                    | Ulaan-Tsav Area    | 1:25,000 | 10,800                 | 1992-1996 |

### Mapping by District

| Country  | District                  | Scale     | Area(km <sup>2</sup> ) | Year      |
|--|---------------------------|-----------|------------------------|-----------|
| <b>&lt; Digital Maps &gt;</b>                              |                           |           |                        |           |
| Cambodia   | Reconnaissance GIS        | 1:100,000 | 80,000                 | 1996-1998 |
| Cambodia   | Angkor                    | 1:10,000  | 430                    | 1996-1997 |
|  |                           | 1:5,000   | 100                    |           |
| Kazakhstan   | Southern Area             | 1:100,000 | 22,500                 | 1997-2000 |
|  |                           | 1:200,000 | 150,000                |           |
| Laos   | Mekong River Basin        | 1:100,000 | 214,000                | 1998-2002 |
| <b>&lt; Geodetic network &gt;</b>                          |                           |           |                        |           |
| Bangladesh   | National Geodetic Network |           |                        | 1992-1995 |
| (140 control points, 2,280 km leveling, tidal observatory) |                           |           |                        |           |

### Topographic Mapping For Angkor Archaeological Area in the Kingdom of Cambodia



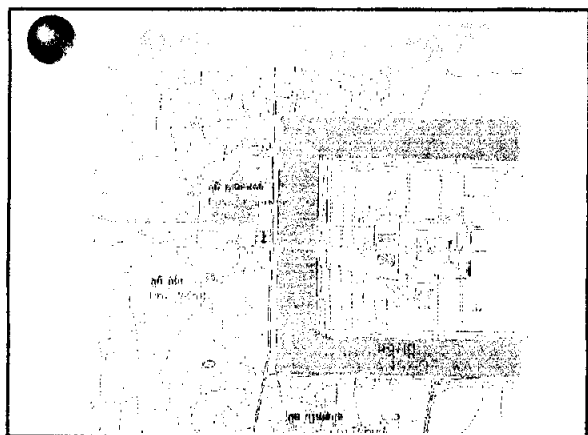
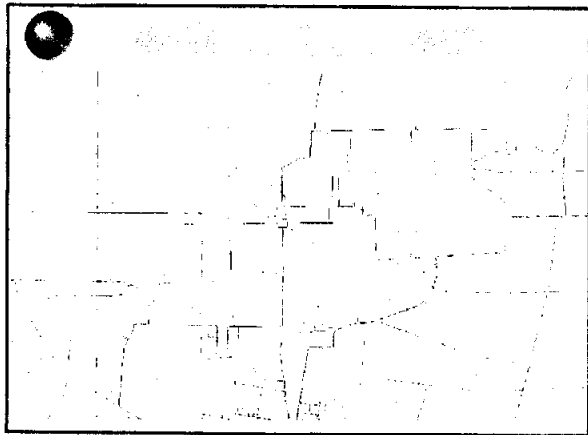
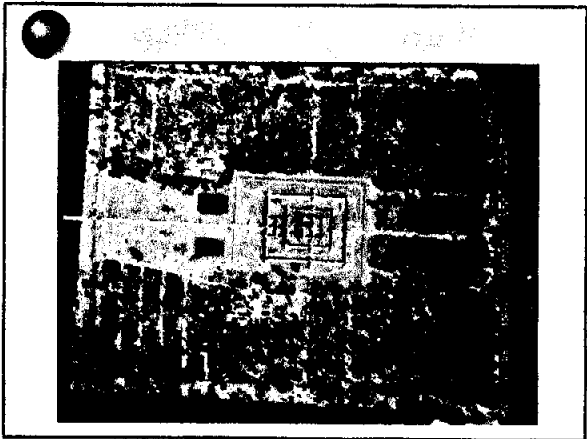
### Mapping Issues in the Angkor Archaeological Area

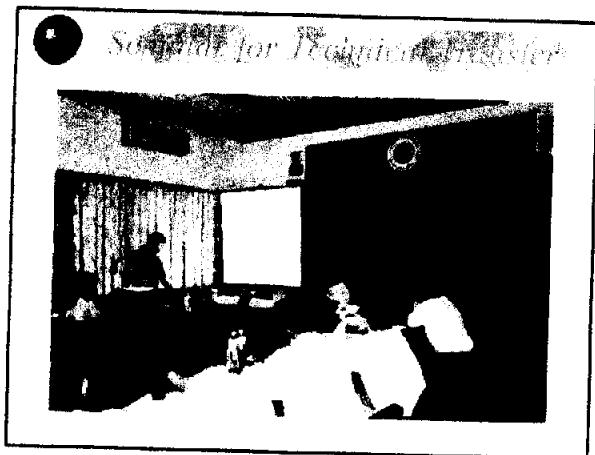
- ⊛ Request from Cambodia in 1996
- ⊛ 1:50,000 maps in 1960s are not updated
- ⊛ Core target of regional development
  - How to balance between preservation / restoration of ruins and the development of sightseeing resource
- ⊛ Maps with precise location of ruins are mandatory

### Mapping in the Angkor Archaeological Area in Cambodia

- ⊛ Study from Jan.1997 to Mar.1998
  - ⊛ Funded and Planned by JICA
  - ⊛ Technically supervised by GSI
  - ⊛ Contracted out to IDI and consultant
  - ⊛ Counterpart: APSARA, Geographic Dept.
- ⊛ Output
  - ⊛ 1:10,000 digital map 430 km<sup>2</sup>
  - ⊛ 1:5,000 digital map 100 km<sup>2</sup>
  - ⊛ 5 meter contour interval (for core area, 1.25 m)







*Mapping Ruins of Ancient Cambodia*

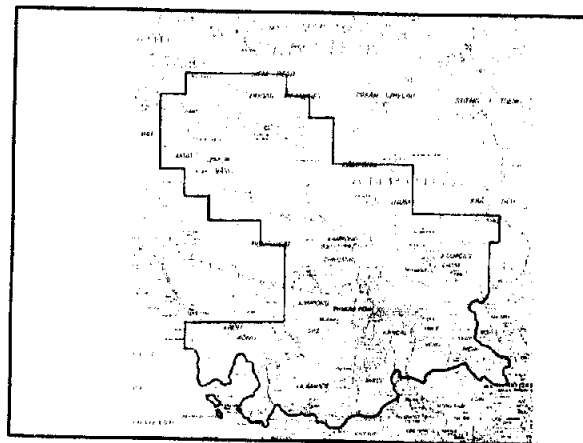
- ❖ Achievement
  - ❑ Mapped for the first time in detail the famous ancient civil engineering works
  - ❑ Found new supposed to be ruins
  - ❑ Determined positional relationship between ruins
    - Basis for analysis of functional and historical relationship between ruins

*Mapping Ruins of Ancient Cambodia*

- ❖ Background
  - ❑ Recovery and reconstruction from the civil war is critical in Cambodia.
  - ❑ 1:50,000 maps in 1960s are not updated
- ❖ Study from Nov.1996 to Mar.1999
  - ❑ Funded and planned by JICA
  - ❑ Technically supervised by GSI
  - ❑ Contracted out to IDI and consultant
  - ❑ Counterpart: Ministry of Public Works and Transportation, Geographic Dept.

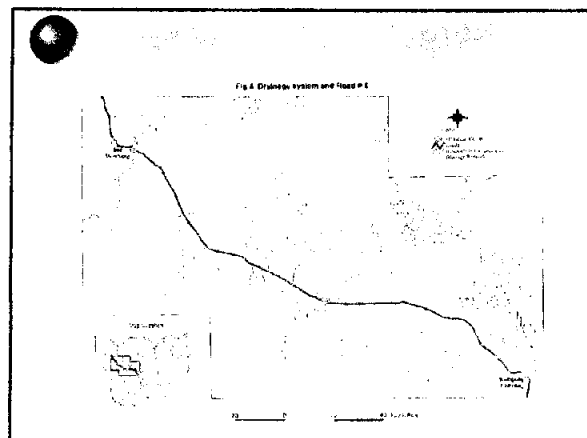
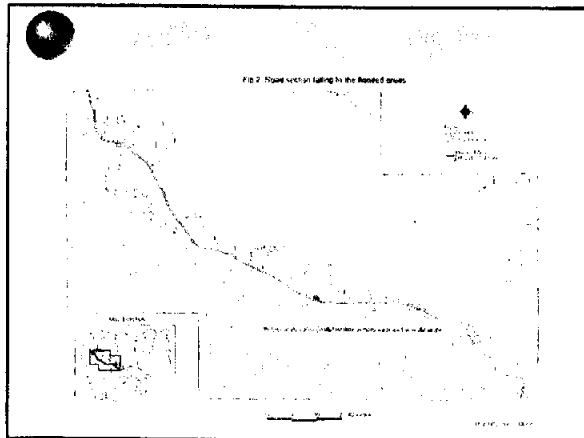
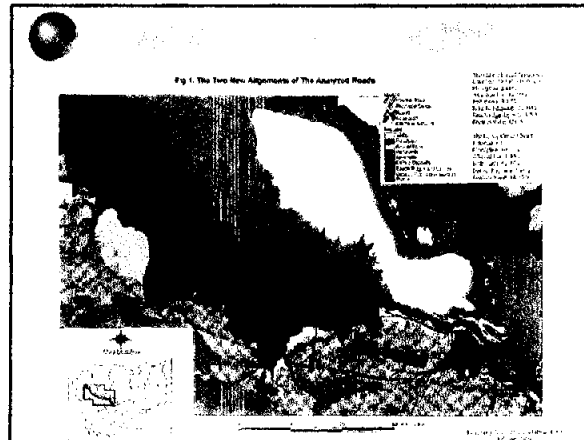
*GIS for development of Mapping Ruins of Ancient Cambodia*

- ❖ Study area
  - ❑ 80,000 km<sup>2</sup> (45% of Cambodia)
- ❖ Input
  - ❑ Satellite images (SPOT)
- ❖ Output: Base data for GIS
  - ❑ 1:100,000 Topographic maps
  - ❑ 1:100,000 Land use data
  - ❑ 1:500,000 Geology/Geomorphology data



### Application by MPWT

- Agricultural Land Allocation to Former Pol Pot Soldiers
- Analysis of Road Alignment Study of Route 5.



- Described technical cooperation programs by JICA
- Increasing demand for GIS data development
- JICA will continue to assist developing countries across the Asia and the Pacific through geographic programs
- For more details, visit JICA home page at <http://www.jica.go.jp/Index.html>