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Vietnam National Hospital of Pediatrics

Transforming Health care in Vietnam: Cybercare in South Asia

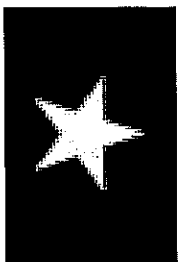
Joseph M Rosen, MD

Pilot Program - Hanoi – Vietnam, March 4 to 17 , 2007



Content of current presentation

- General information of Vietnam
- Description of present HC system in Vietnam
- Description of the National Hospital of Pediatrics
- New Strategy for Healthcare Delivery in Vietnam
- Description of RICE Microsoft Project
- Network based Patient Centric System
- Description of Simulation and Training

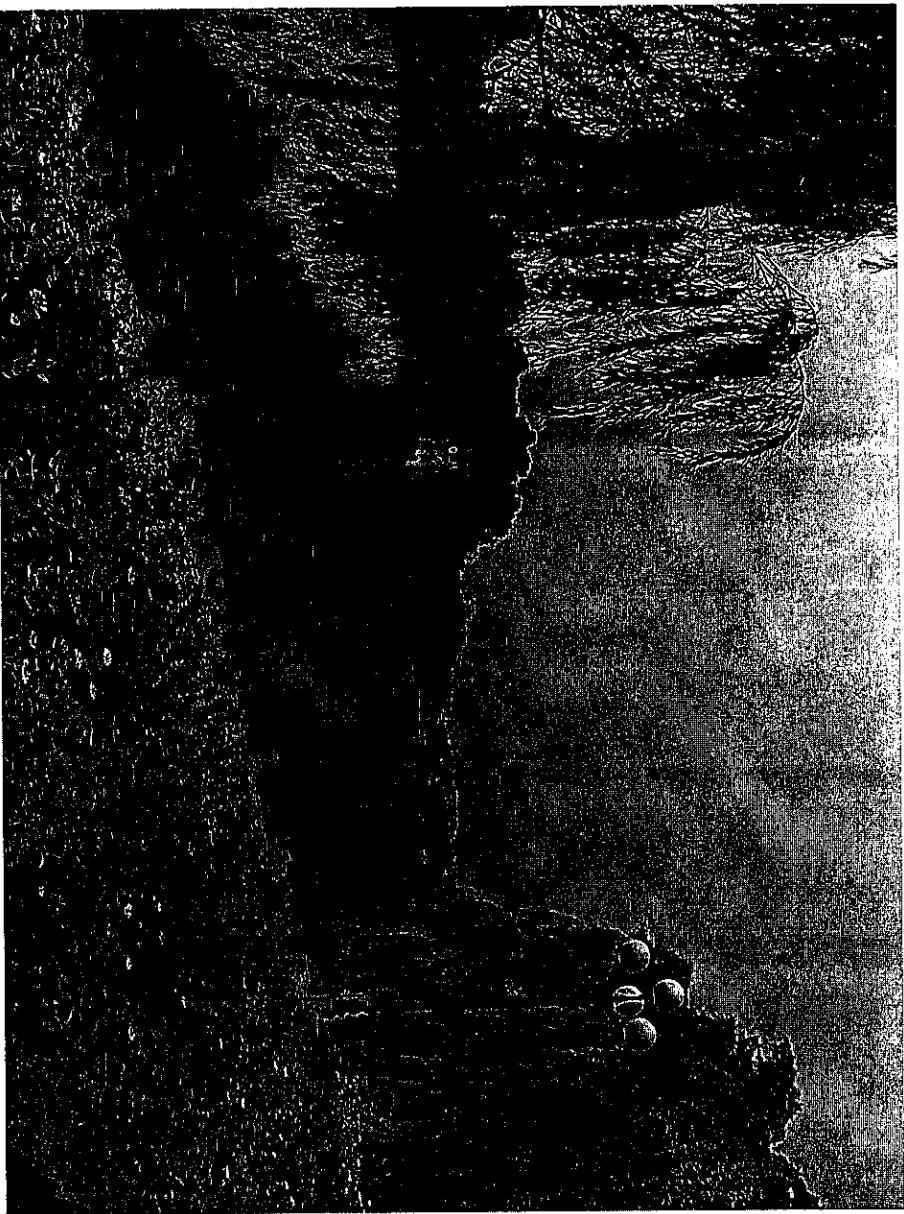


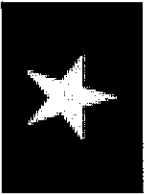
General Information of Vietnam



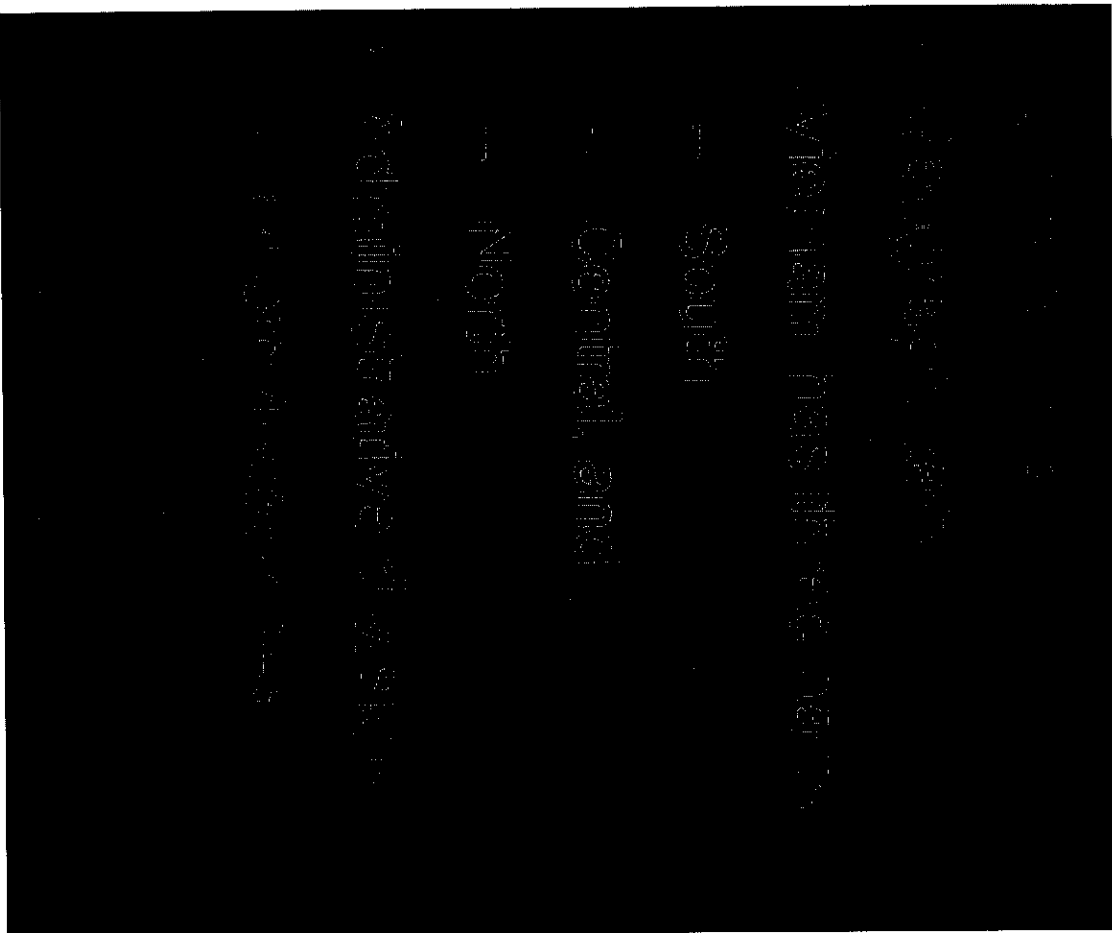
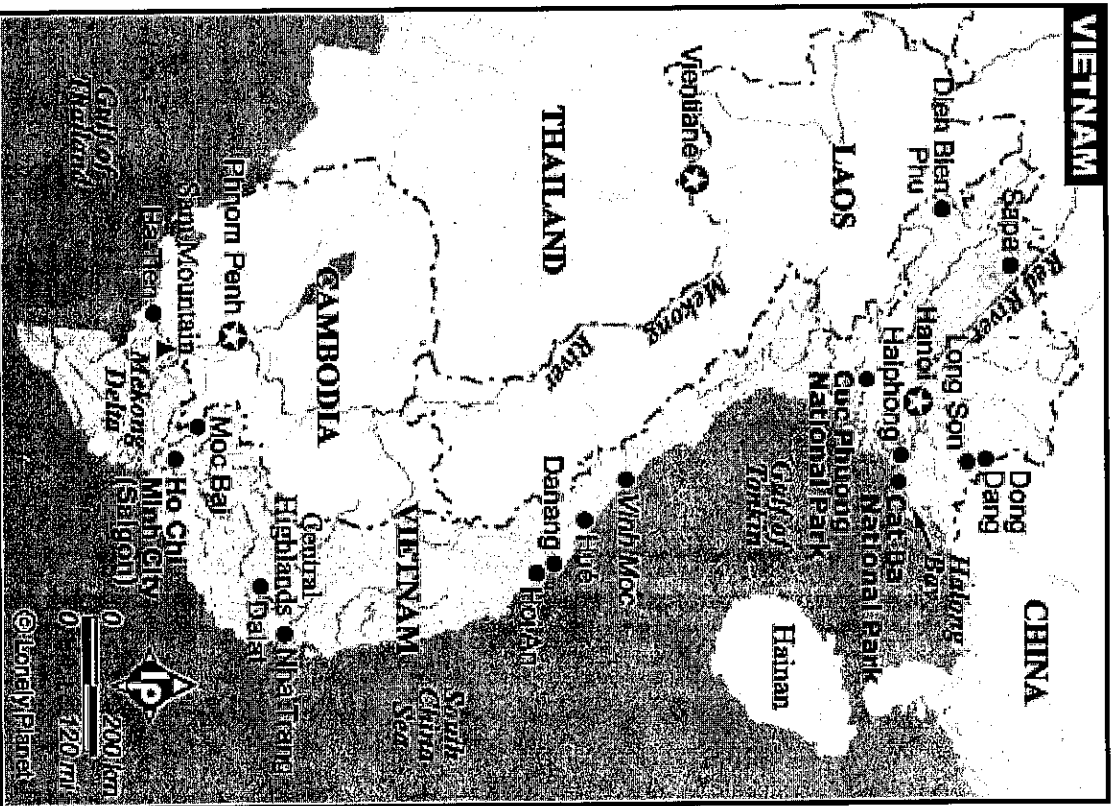
Influencing factors to health care

- Geography
- History
- Politics
- Economy
- Culture



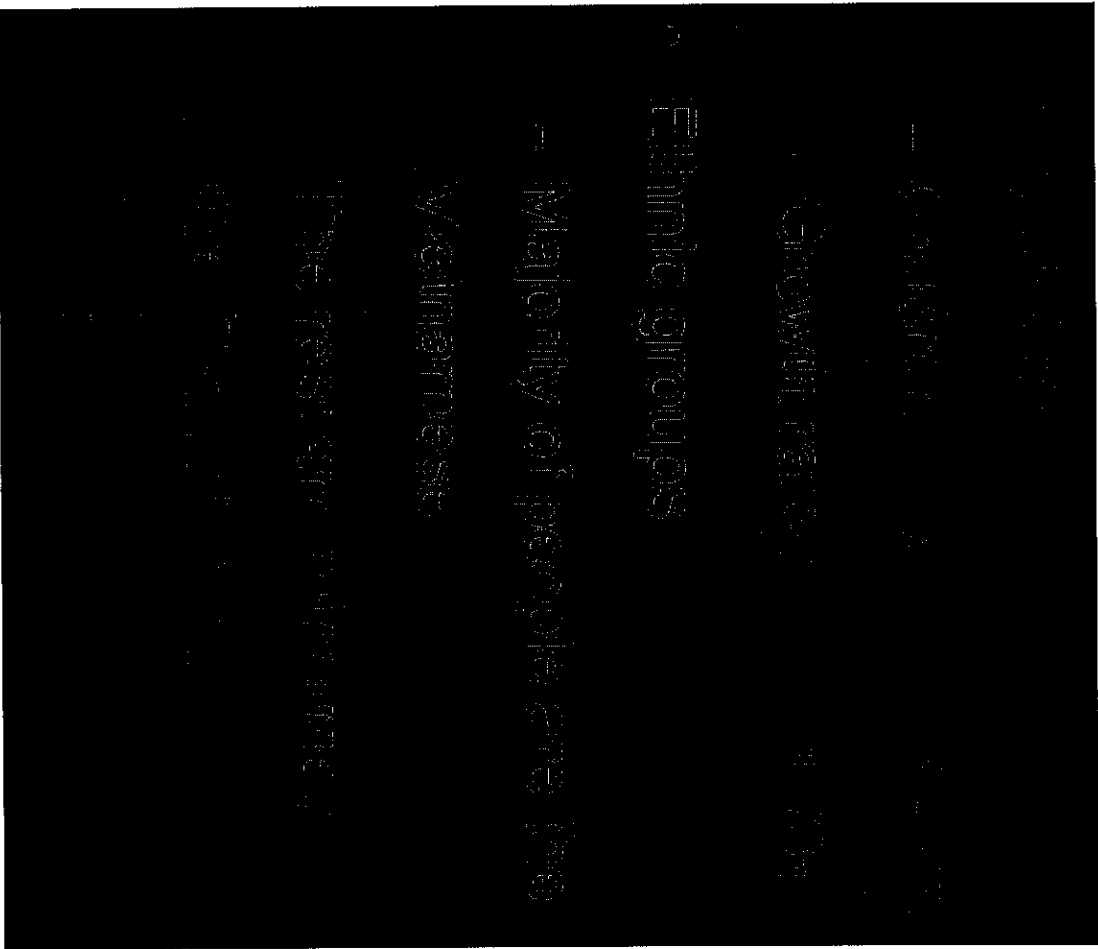


Vietnam Country



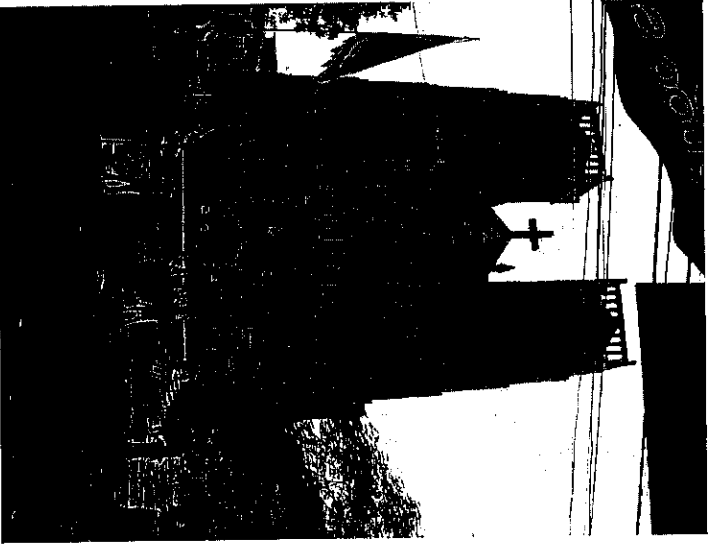
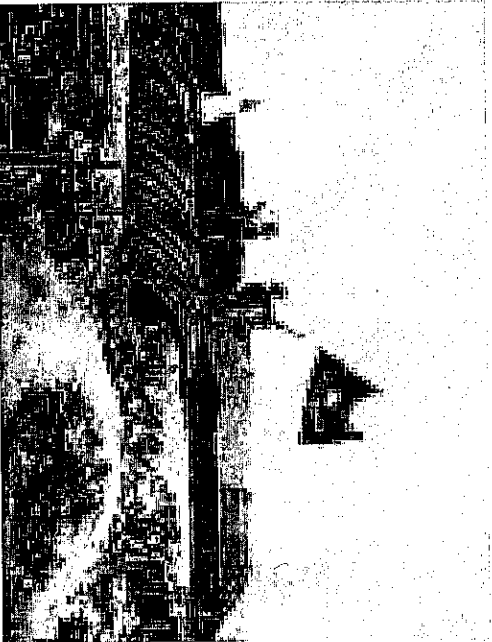
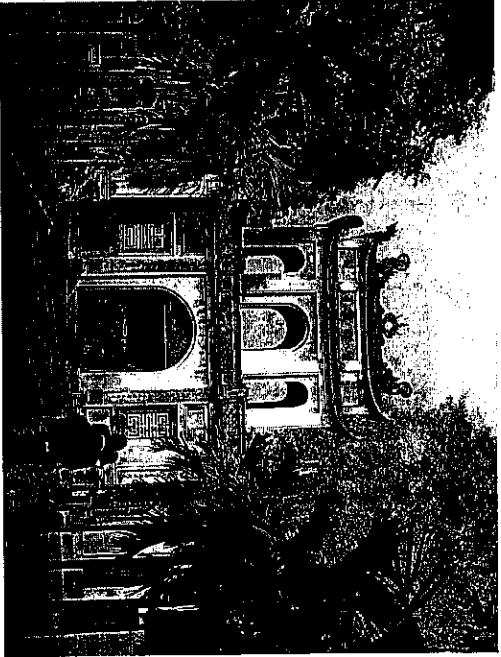


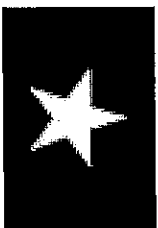
Vietnam Country (cont.)





Brief history of the country (cont.)





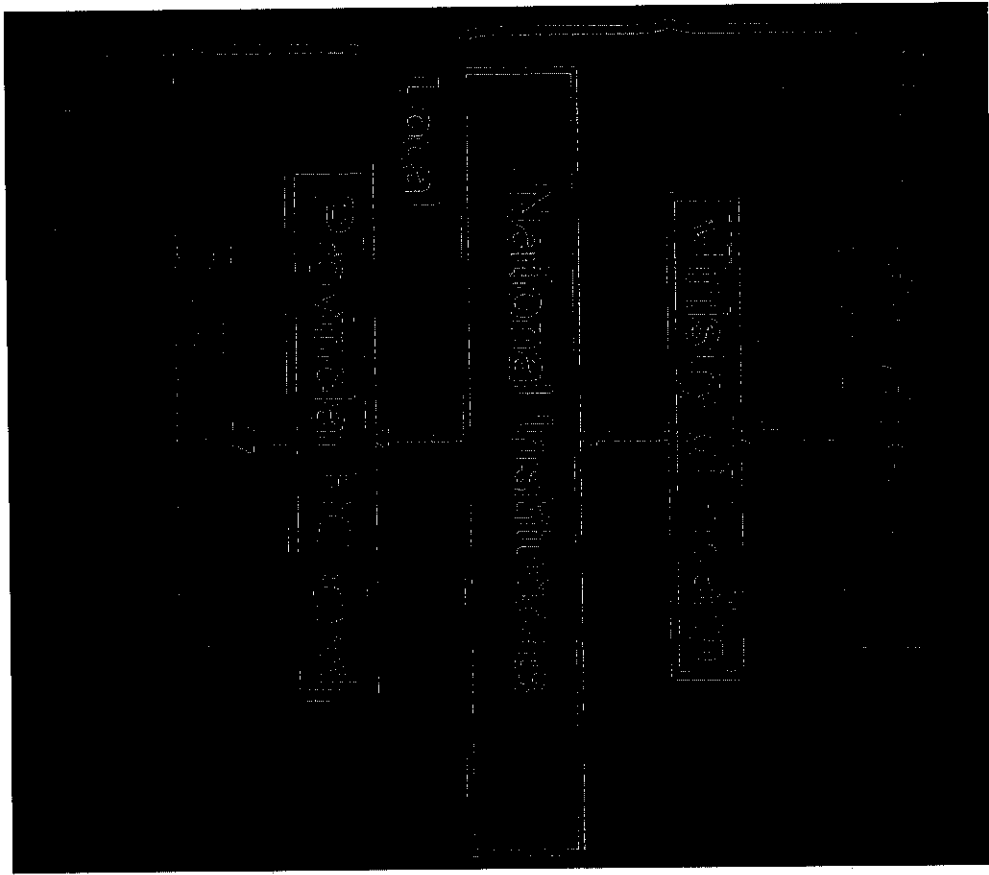
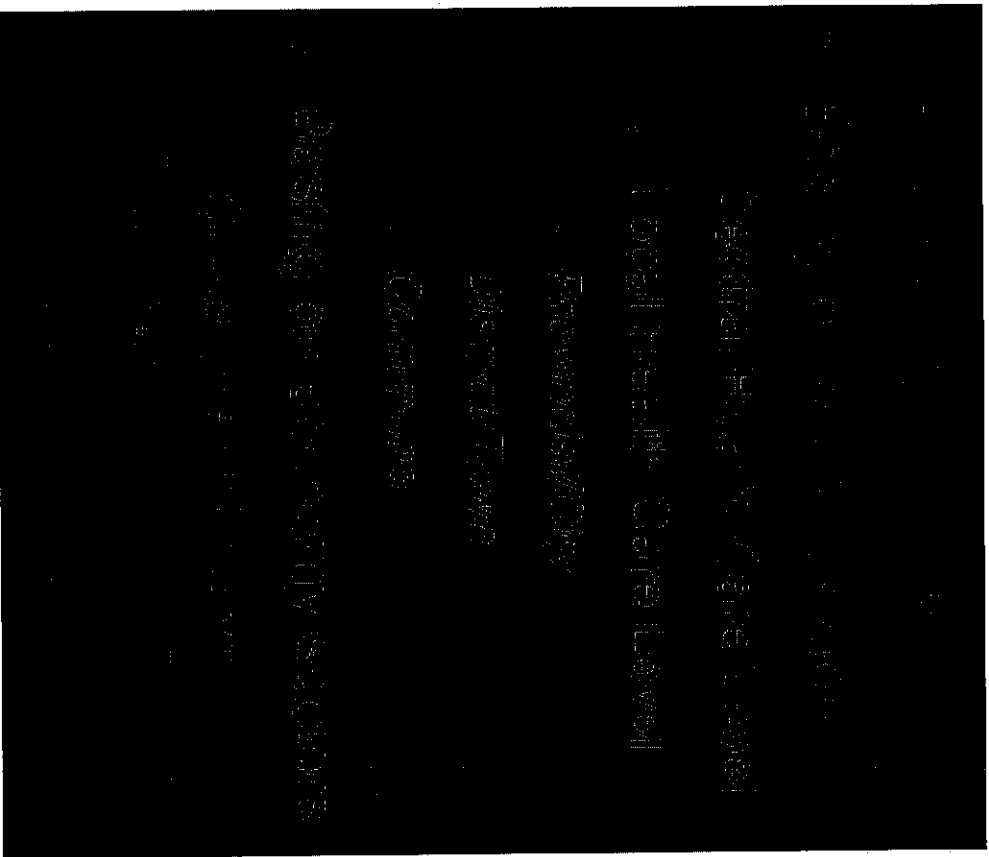
Description of present

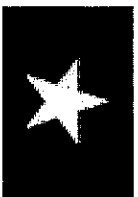
health care system in Vietnam



Description of present HCS in Vietnam

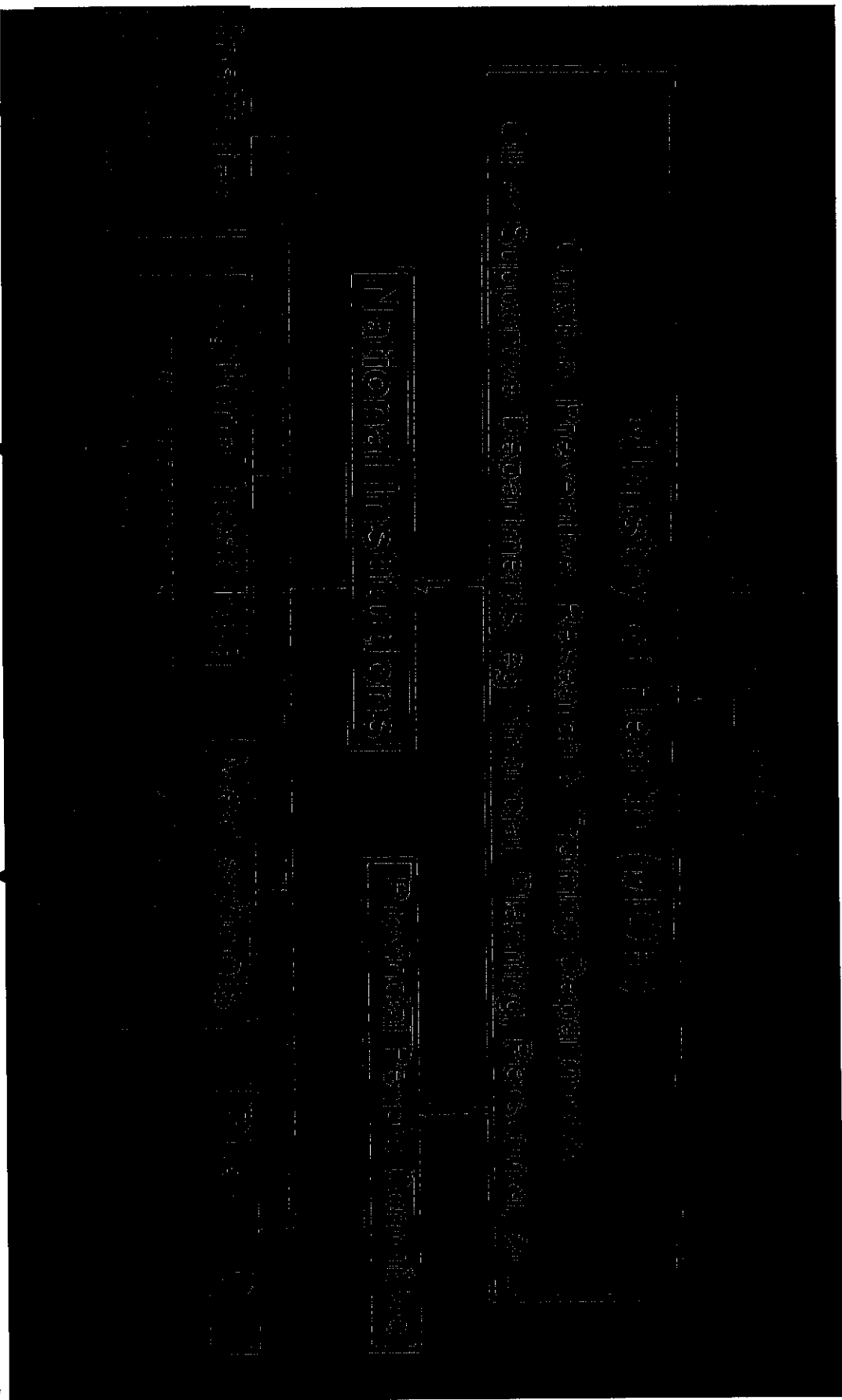
Health care levels and types





Description of present HCS in Vietnam

Central HC level

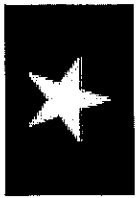




Central HC level

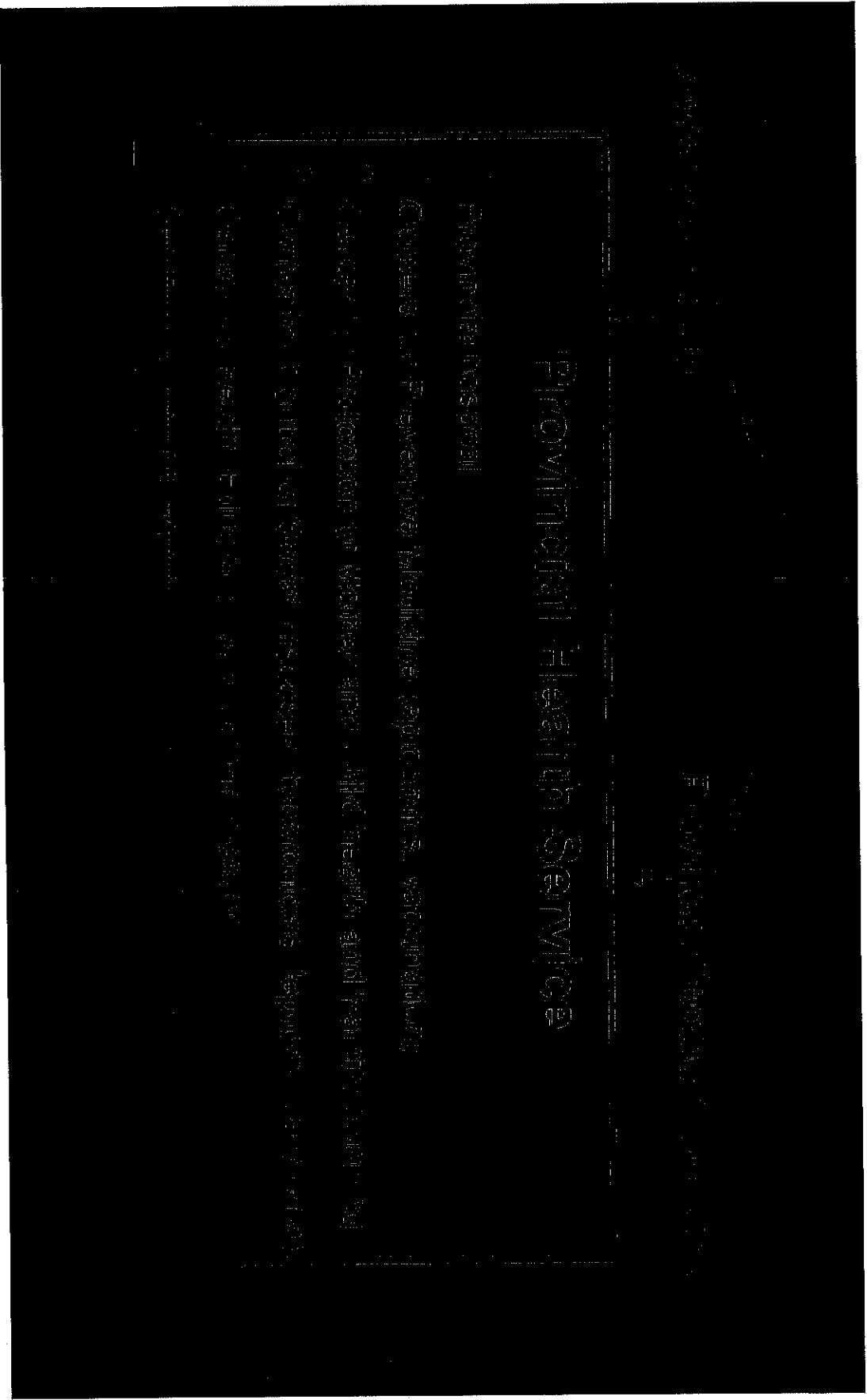
Roles and responsibilities

- **Government**
 - National strategies, policies & plans for HC development
 - Allocation of budget and manpower for MOH
- **Ministry of Health**
 - Making plans and policies for health care
 - Allocation of budget & manpower for national institutions
 - Supervision of the HC activities of national institutions & provincial health service



Description of present HCS in Vietnam

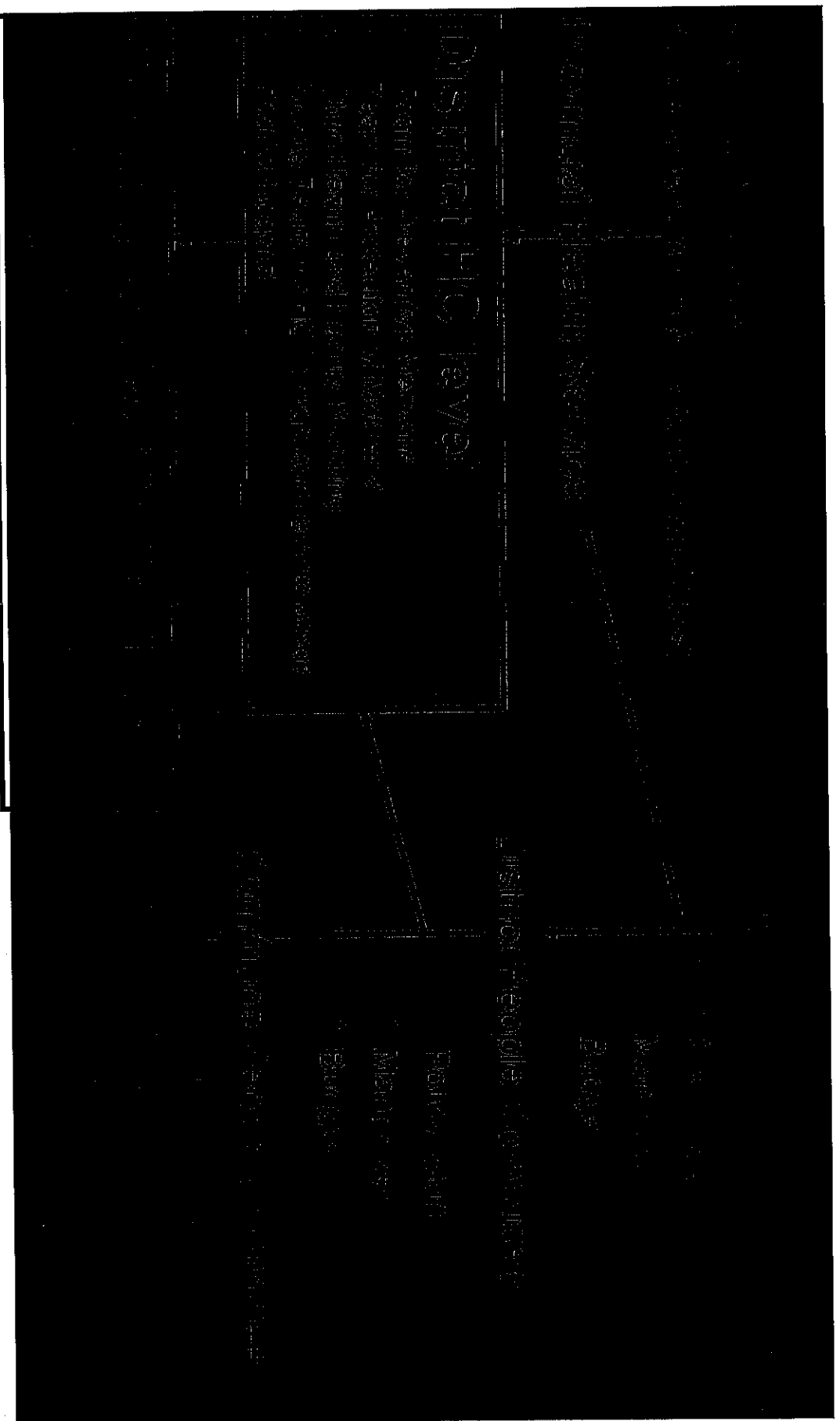
Local HC levels – Provincial level





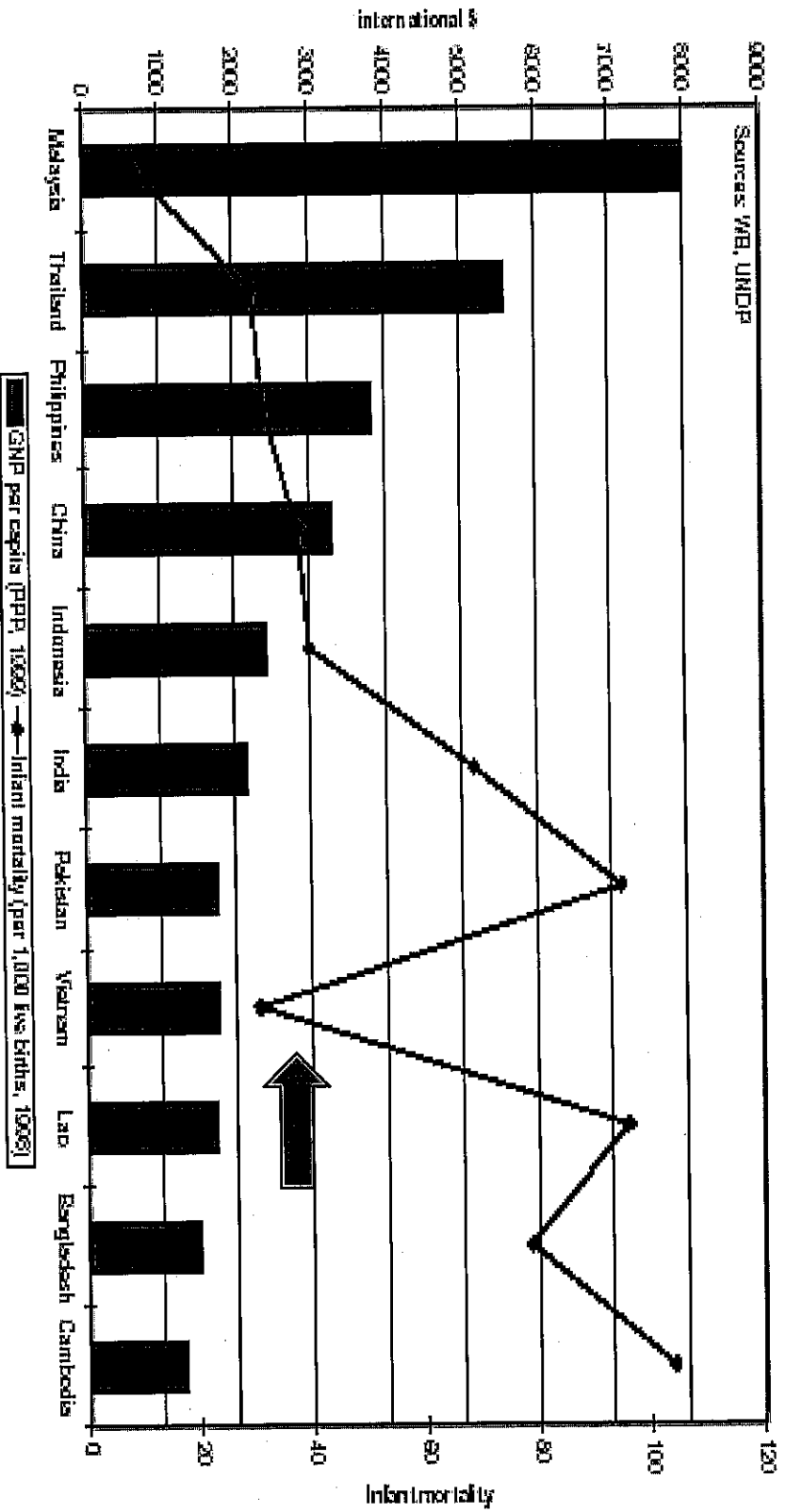
Local HC levels

District & Commune levels



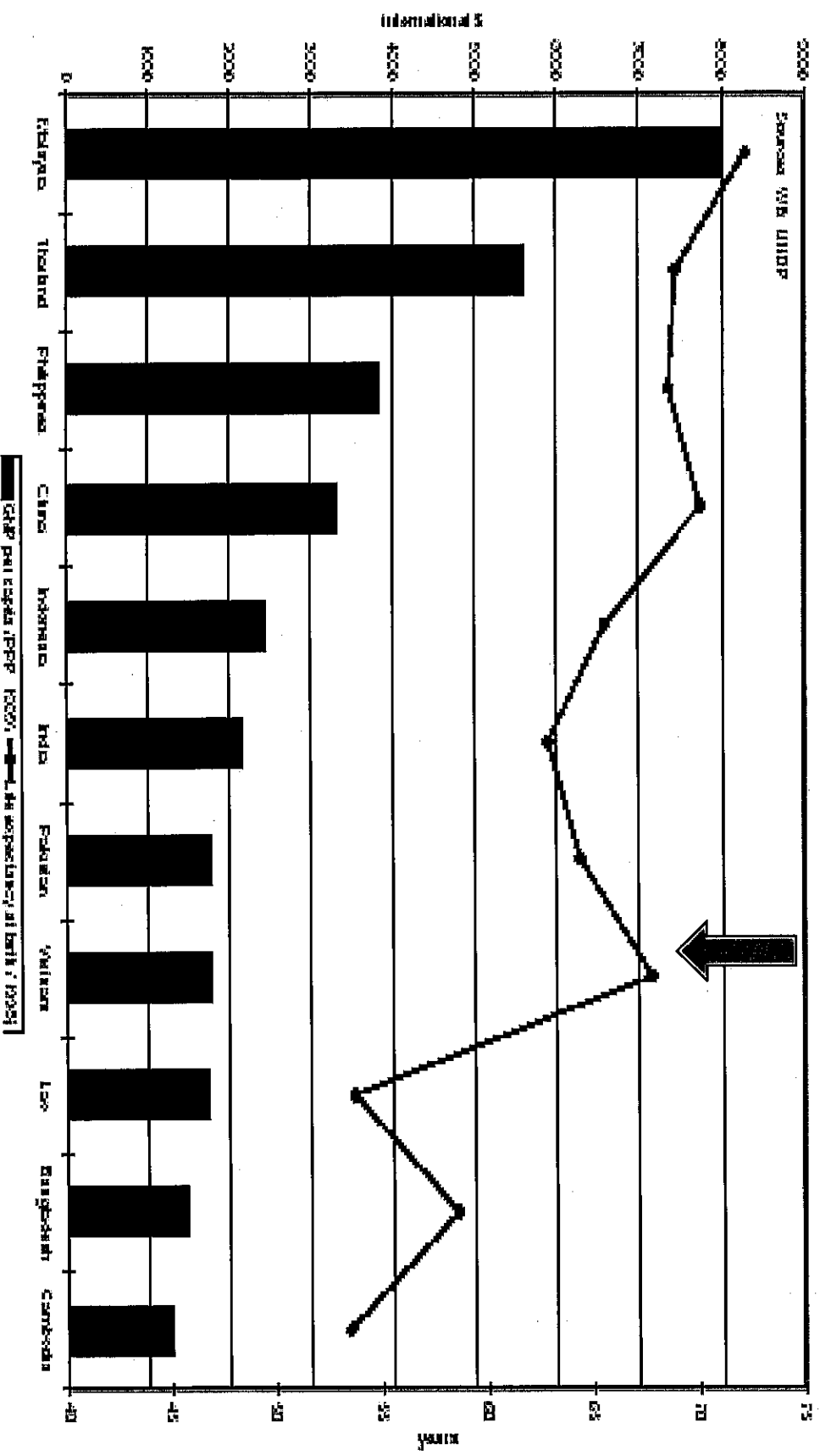


INFANT MORTALITY & GNP



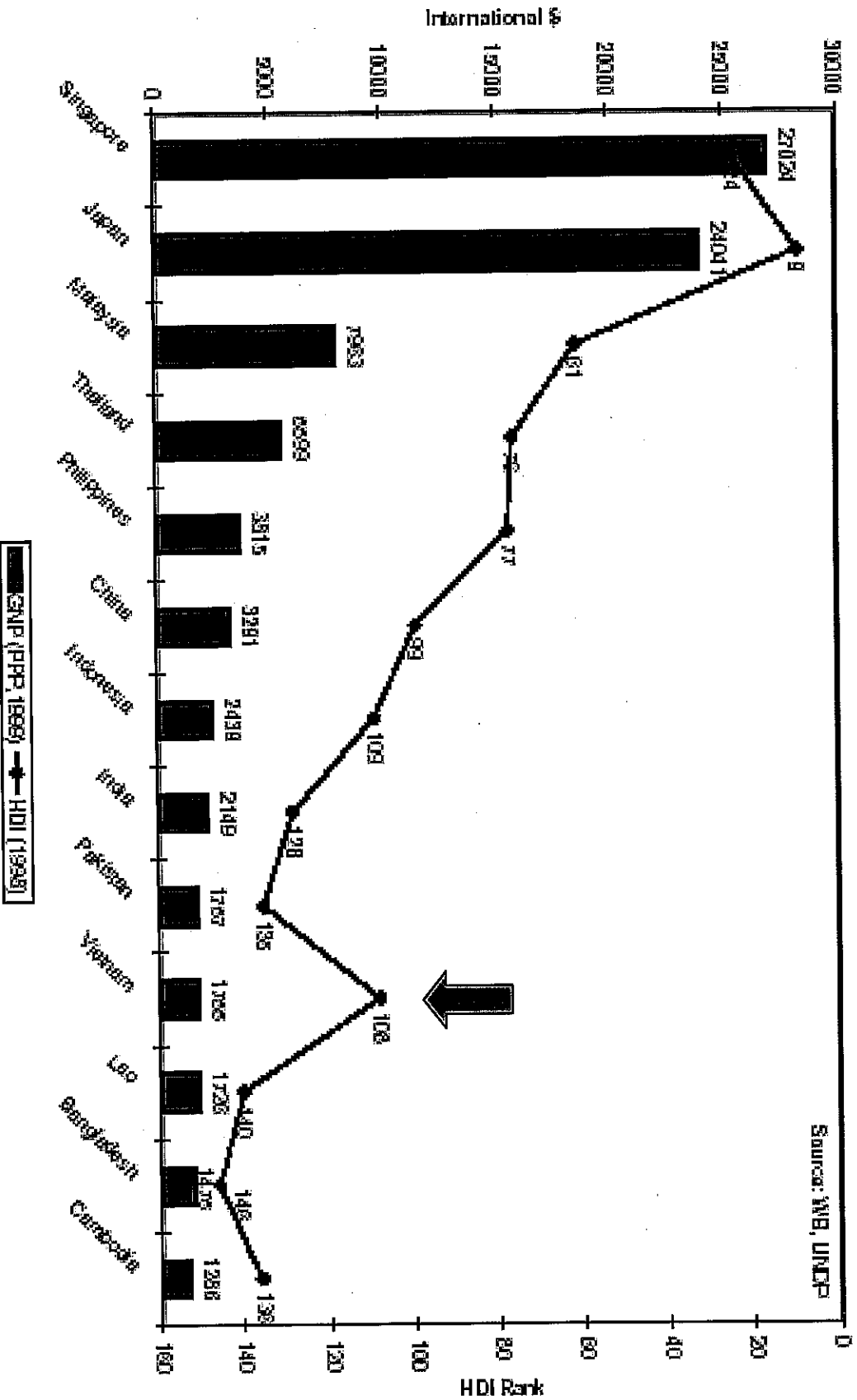


LIFE EXPECTANCY & GNP





HUMAN DEVELOPMENT INDICATORS & GNP



The National Hospital of Paediatrics (NHP)

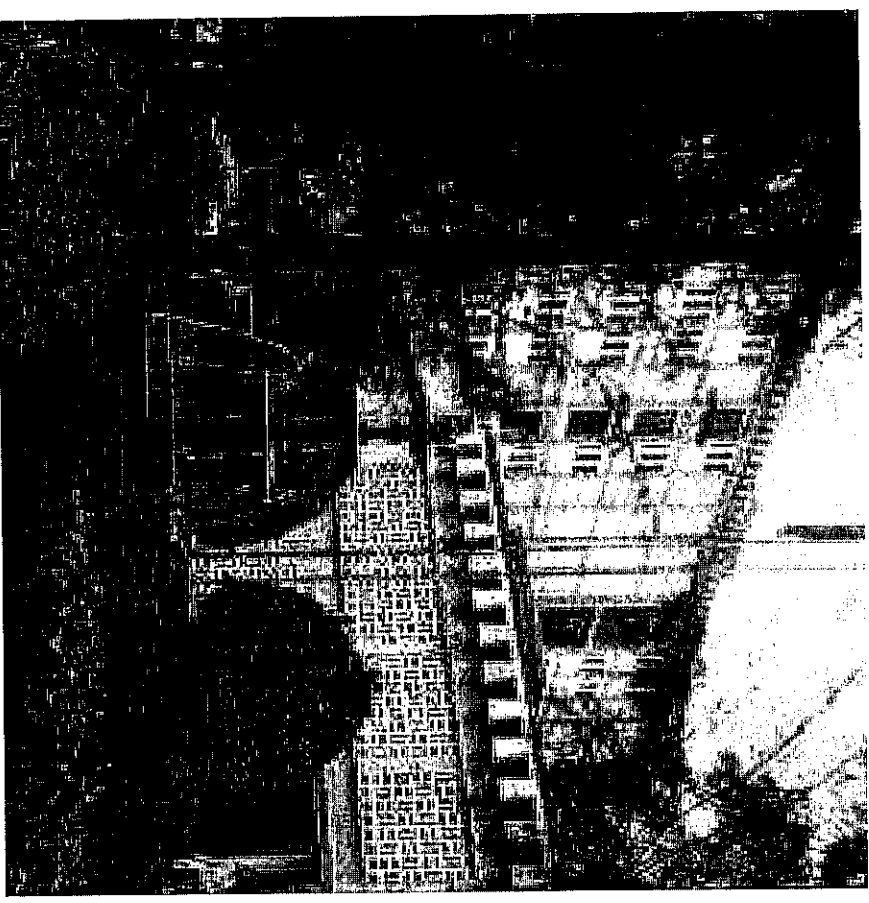
Introduction

Central HC level



Roles and responsibilities (cont.)

- National institutions
 - Curative work
 - Preventive work
 - Training & education
 - Research activity
 - Community HC activity
 - International co-operation
 - Financial management



Overview:

Current Hospital

Key Function: 1. Treatment

- **Main tertiary referral centre for paediatrics in Vietnam.**
- **Cover around 23 million population**
 - **No. patient beds increased**
 - **from 400 (1981) to 580 (2005)**
 - **28% referrals from Hanoi**
 - **72% referrals from provinces**

Key Functions: 2. Training

Annually, the NHP coordinates with Hanoi Medical University to carry out training for:

- National and international medical students
- Medical doctors
- Continuing education courses for pediatric staff

-No. of university-trained students: 100 /year

-No. of post-graduated doctors: 80 /year

-No. of short-term training courses for medical staff: 45 /year

-No. of short-term trained medical staff in Pediatrics: 1.800 /year

Key Functions: 3. Research

- **Centre of Research.**
 - **Community research in child ill-health**
 - **Special research on paediatric preventative care, diagnosis, and treatment for children**
- * **Apply new advanced techniques and protocols in diagnosis and treatment.**

Key Functions:

4. Guidance and Outreach Activities

- **Centre of Outreach Activities: Primary Child Care**
- **Every year, the NHP carries out the following activities:**
 - Updating and providing protocols for the diagnosis and treatment of pediatric patients for provincial hospitals
 - Updating the policies guiding pediatric care in Vietnam.
 - Organizing training courses at the communal, district and provincial levels.
 - Expanding child care programs on the community level.

Key Resources

- **Manpower:** 1023 staff
 - **Doctors:** 199 **Nurses:** 468
 - **Pharmacists:** 21 **Others:** 335
- **Budget sources:**
 - Swedish financial support ended June 1999
 - Current budget from VN Government
 - * MOH budget: 34,500,000 VND / year (\$2.3 m USD)
 - * International support:

Recent Achievements

✱ New technological advances have been applied in NHP :

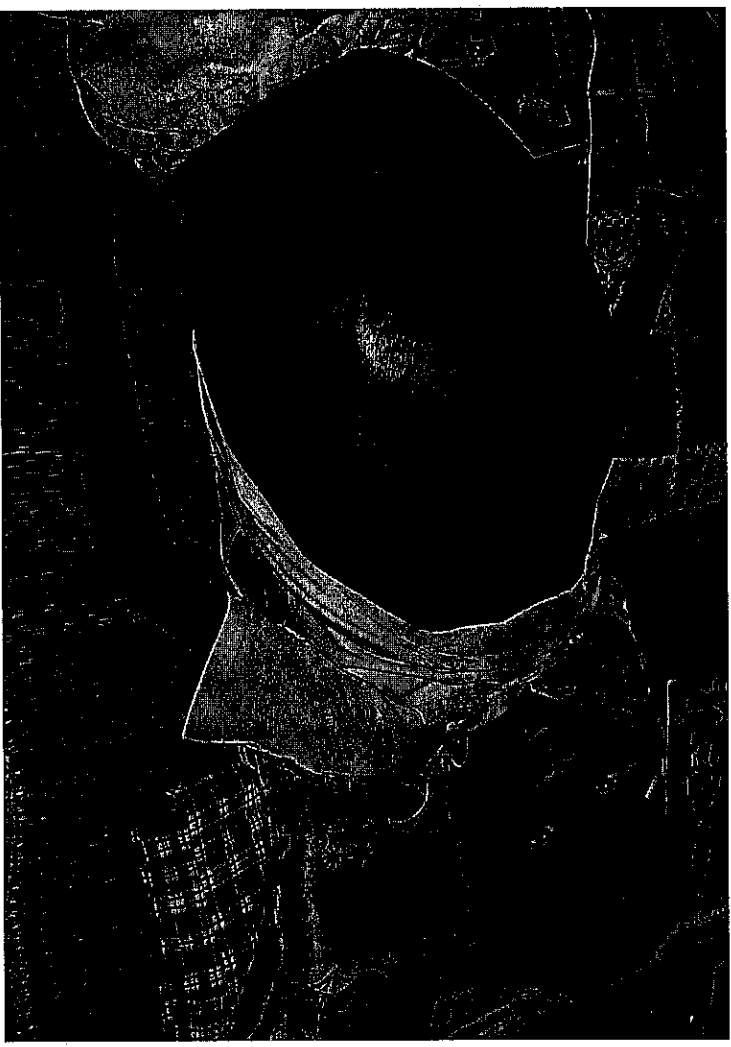
- Endoscopic surgery: Laparoscopic and Thoracoscopic surgery
- Gastroscopy
- Tracheobronchoscopy
- Open heart surgery
- Separation operations of conjoined twins
- Kidney transplants have been performed successfully
- First liver transplant in NHP

New technological advances have been applied in

NHP : (cont.)

- Hemodialysis.
- Cardiac intervention.
- Biomolecular laboratory.
- Genetics laboratory.

First liver transplant in NHP

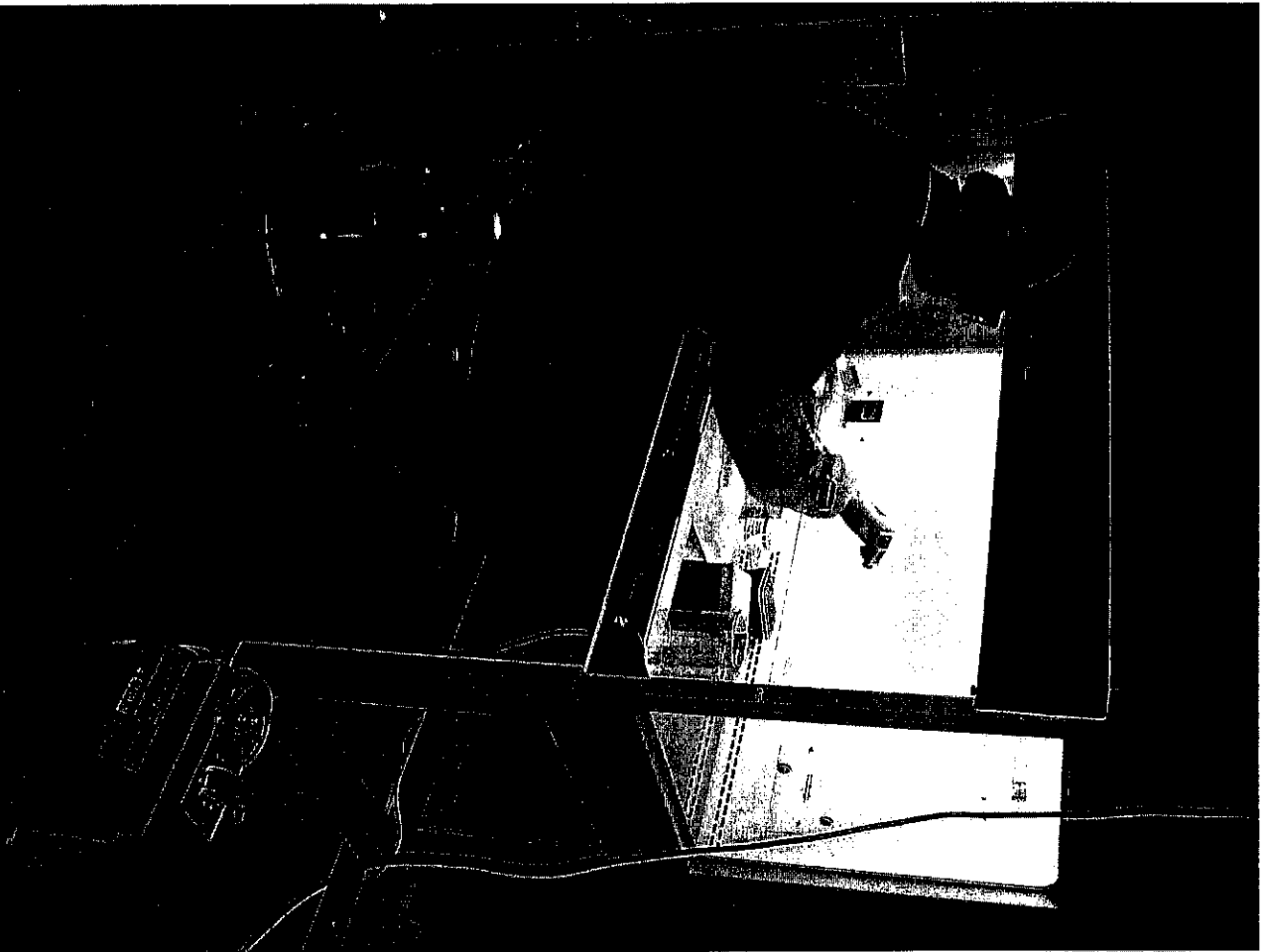




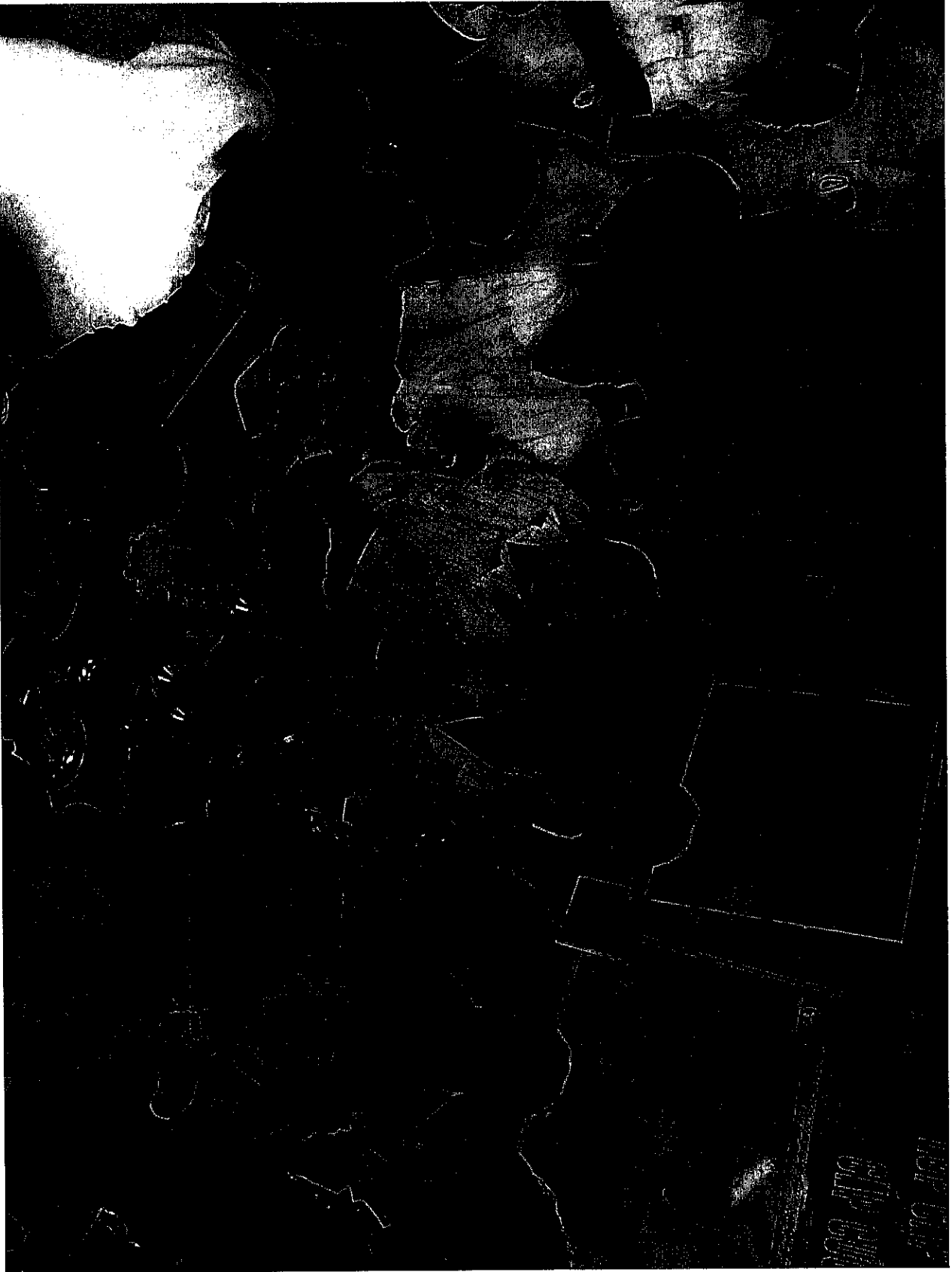
✓ surgical Separation of conjoined twins



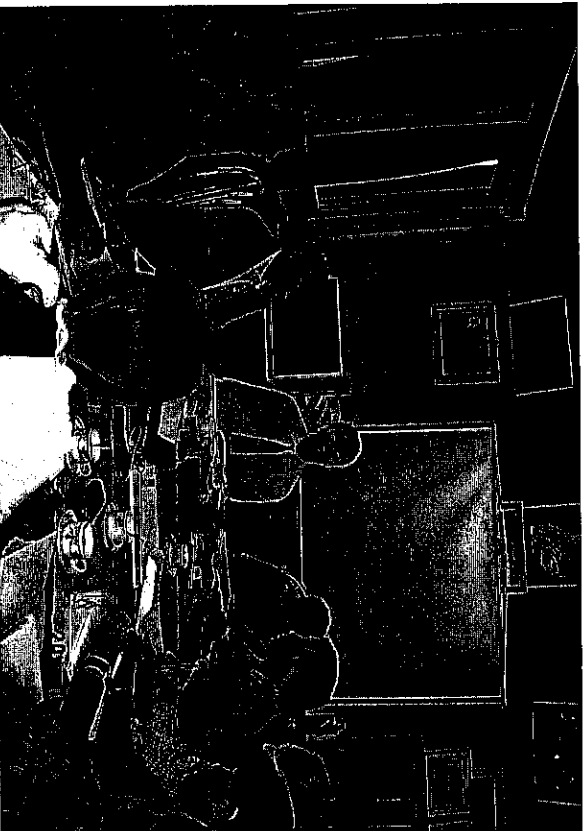
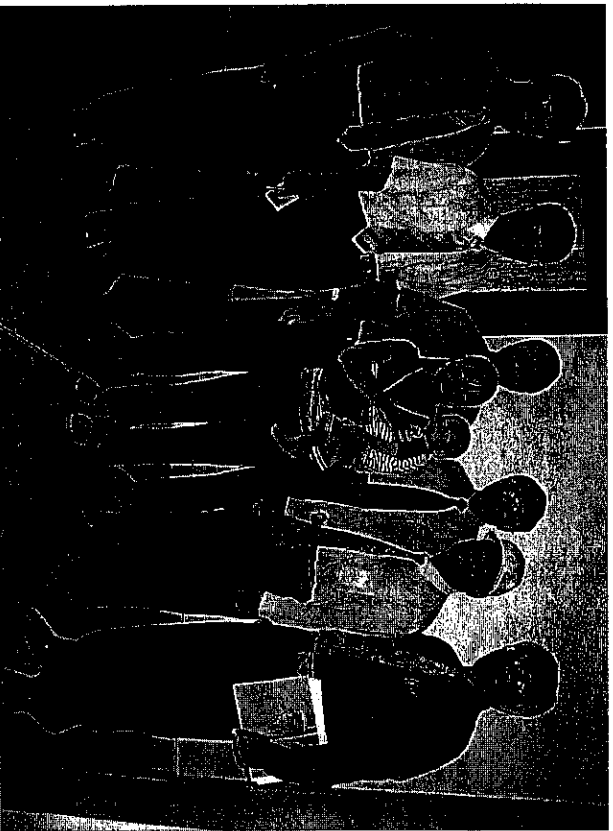
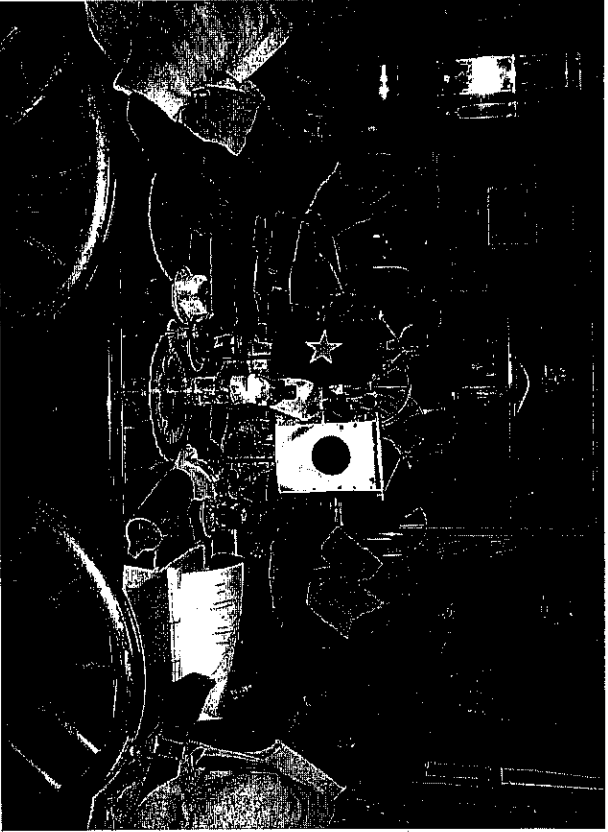
✓ Biomolecular Lab



Guidance and Outreach activities



5. International cooperation

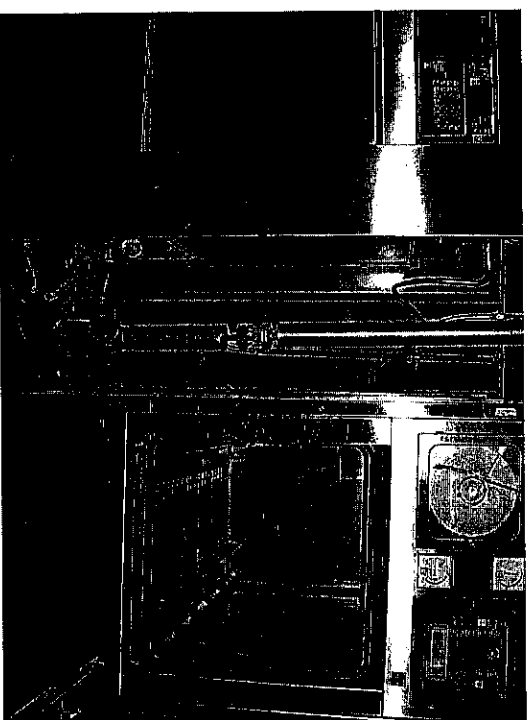
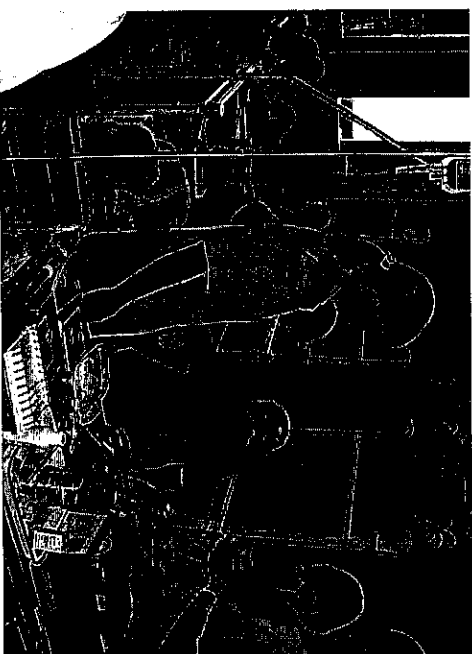
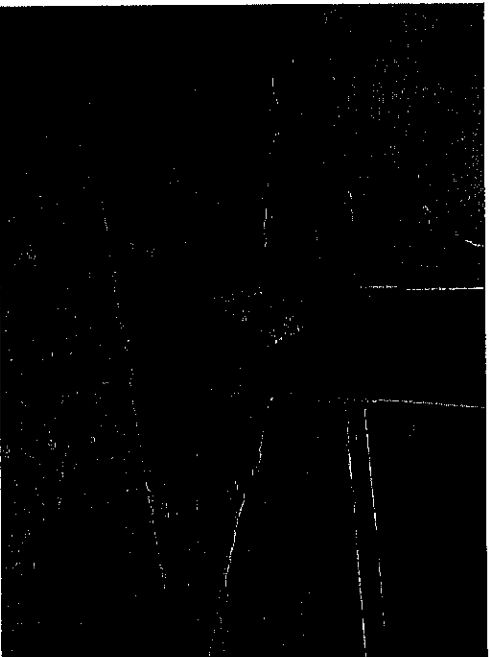


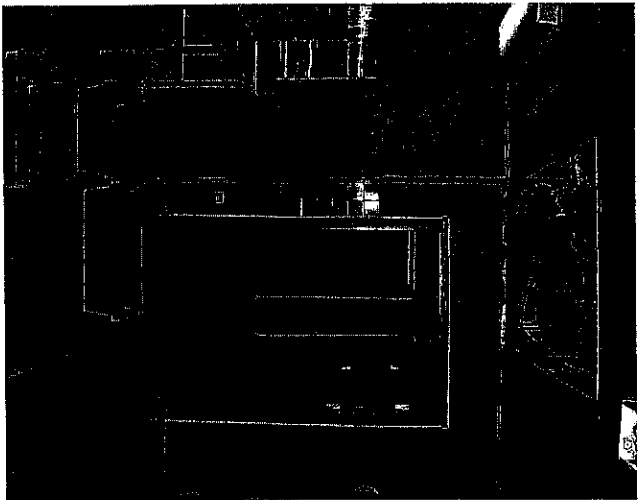
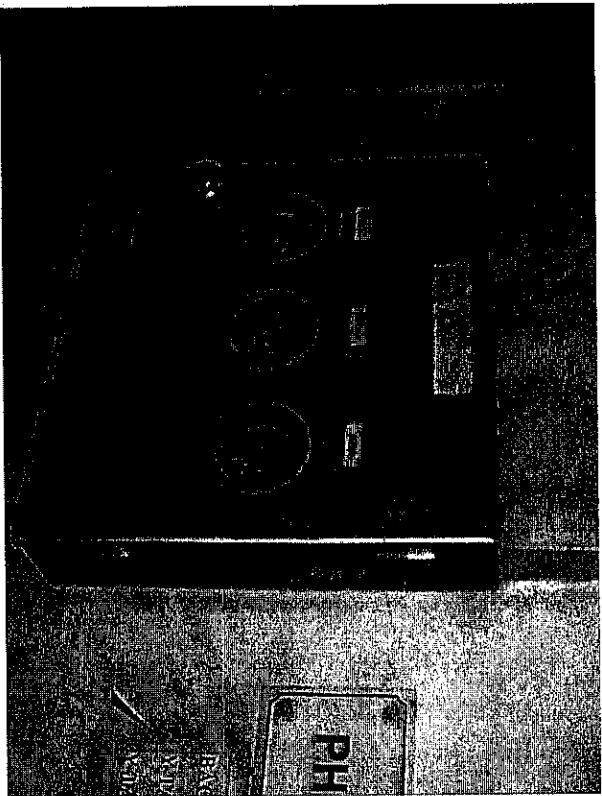
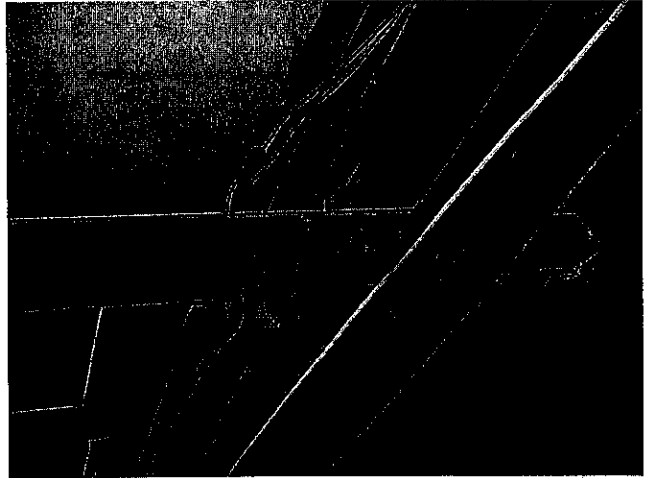
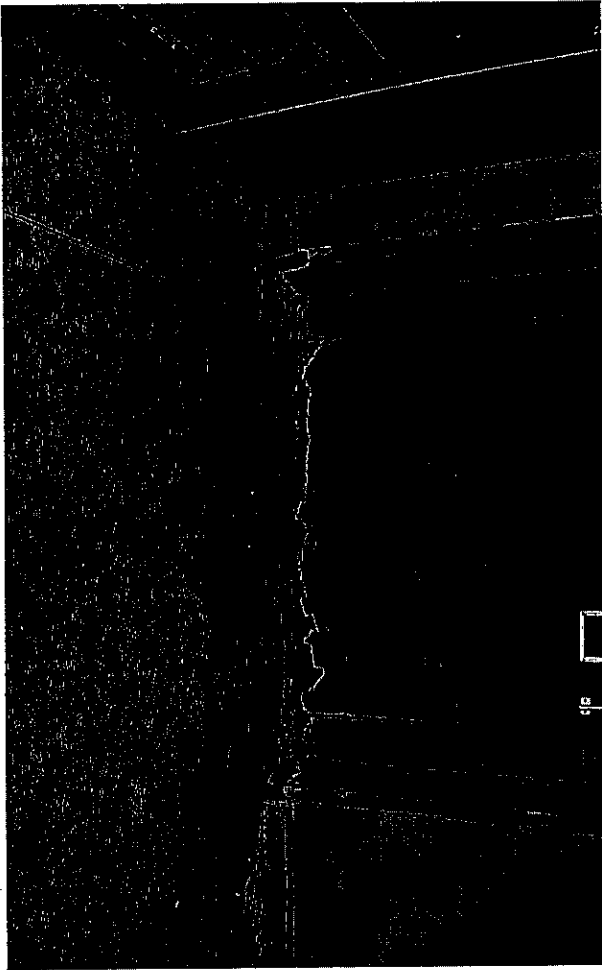
Current Difficulties and Challenges

- Overload situation
- The health care and treatment needs of children are increasing rapidly
- Limited budget, children under 6 years old: free of charge
- Limited space
- Infrastructure: + damaged
+ old design

Status of Infrastructure

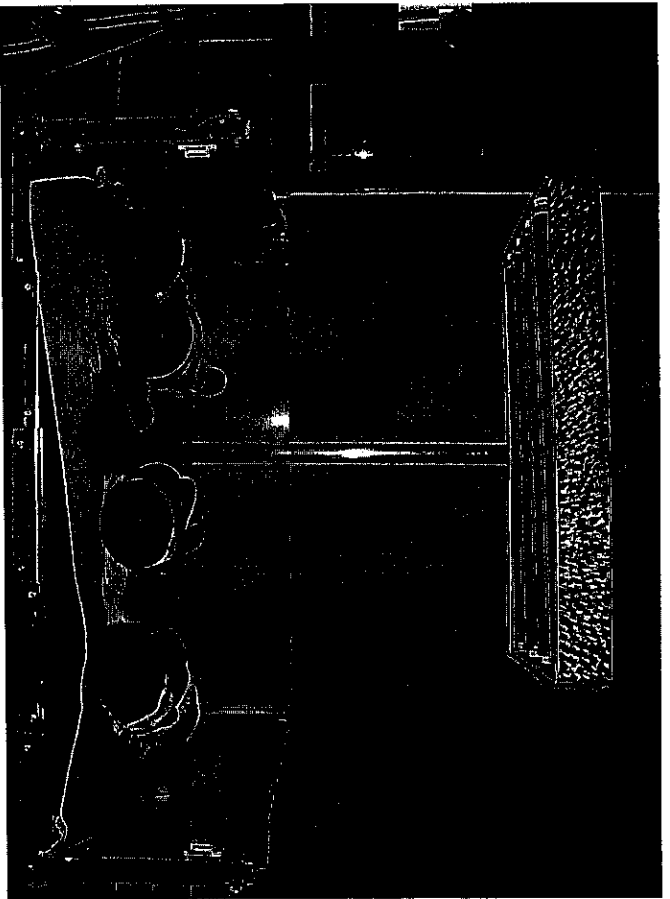
- **Severe Deterioration:**
 - ✿ **Widespread structural damage of buildings**
 - ✿ **Chronic malfunctioning water supply, electrical systems**





➤ **Limited Space:**

- ✿ **In-patient wards
overcrowded**
- ✿ **Outpatient area
overcrowded/ cramped**



Strategic Opportunities for

NHP

Vision

**Establish NHP as the 'Centre of Excellence'
for Paediatric Services
in Vietnam**





Strategic Aims and Objectives

- Expand and modernize NHP - develop role as a leading paediatric institution, tertiary-level referral hospital and centre for education, training and research in Vietnam ('Tertiary Hub').
- Improve quality of patient care at NHP and quality of healthcare for children throughout the country

to ensure that Vietnamese children have access to the same standard of comprehensive health care as other children in the world.

Strategic Aims and Objectives

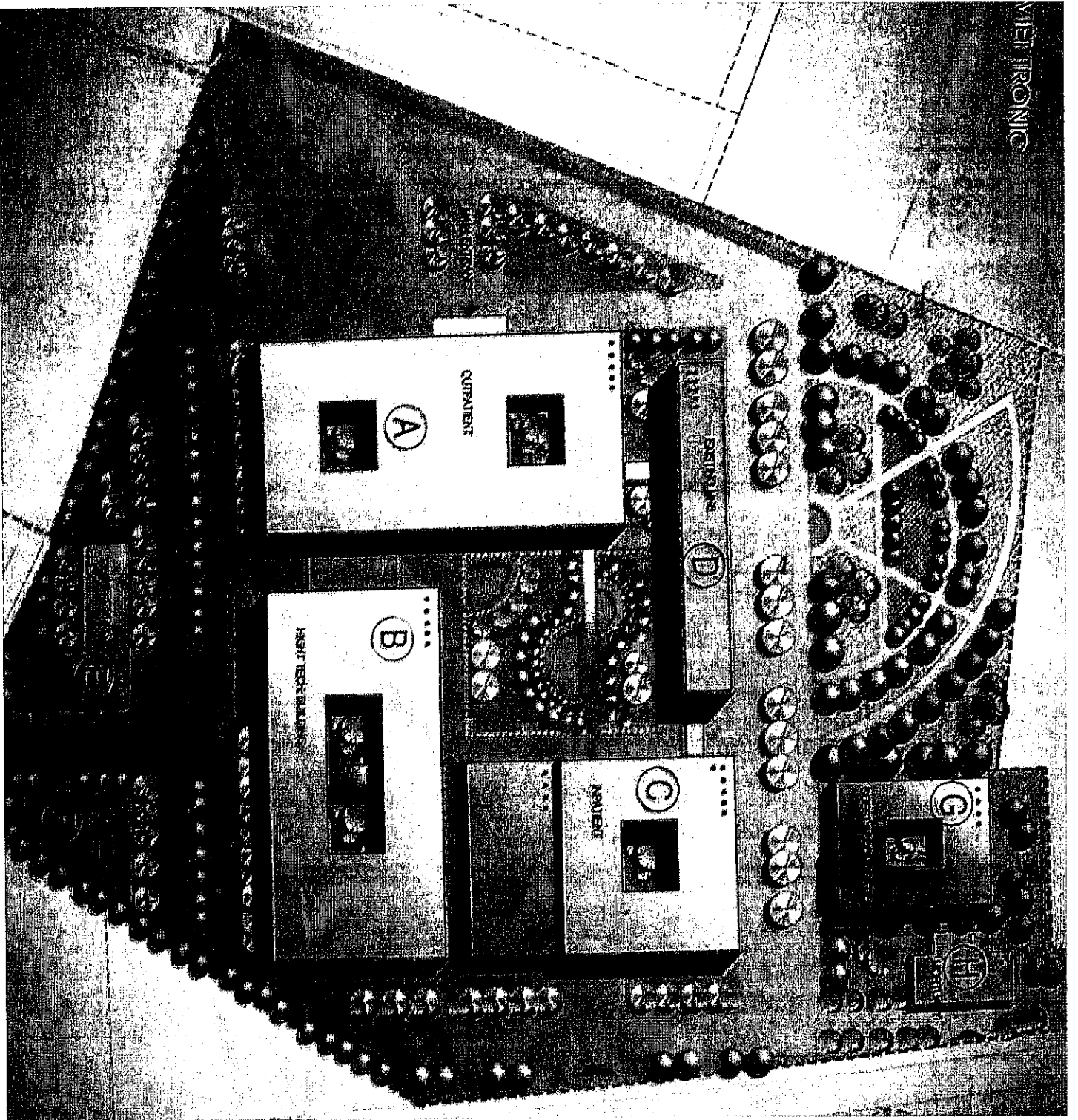
(cont.)

- **Develop techniques and technologies at NHP in order to maintain the role of the Hospital as the leading centre of clinical care, education, medical research (paediatric diseases) and community outreach activities**

A new plan to develop the NHP

- Number of beds: 900
- Budget for redevelopment : USD 80 – 85 million
- 4 phases

Option B







Remote Interaction



Consultation and Epidemiology

Network Based Healthcare Delivery

For Patient Centric Care
“Optimize care for the Patient
and Minimize Cost to the

Collaboration between ~~Country~~ **Country**, Microsoft and the
Thayer School of Engineering, Dartmouth College

Joseph Rosen, MD; Elliot Grigg; Shunhui Zhu

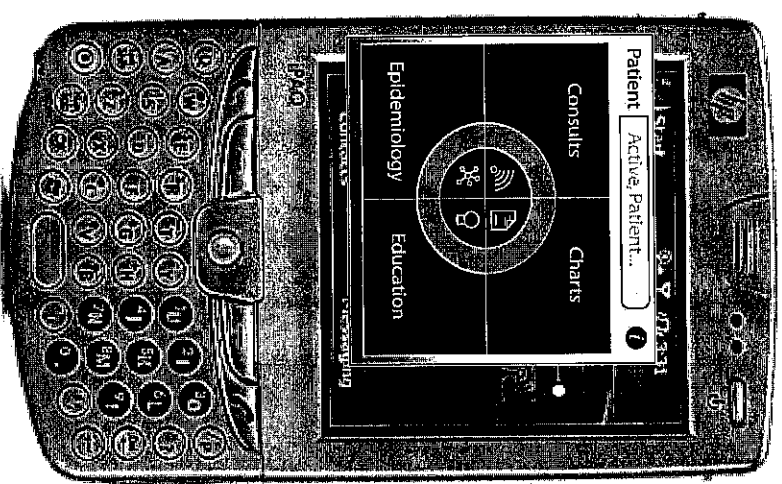


Network Based Healthcare

- Network maximized deliver care and minimized cost to provide this care
- Network approach allows patient to receive care as close to home as possible at highest level
- In some cases this is telemedicine and training with simulation to the rural clinic facility
- In other cases it allows faster transport of patient to the central hospital facility with information

Overview

- Cellular-phone based electronic medical record'
- Connecting doctors in rural areas to doctors in major cities
- Four parts:
 1. Electronic Chart
 2. Remote Consultation
 3. Epidemiology
 4. Medical Education



The Big Questions

- How do we define Global Local healthcare?
- How to prepare for a global pandemic?
- How do we decrease the cost of care?
- How do we improve the quality of care?
- How do we move from hospital based system to a network based system?

Understanding Local Culture

- National / Broad Culture
 - Working with local customs and belief systems
- Health Care Culture
 - Interfacing with health care system and practices



The Problem(s)

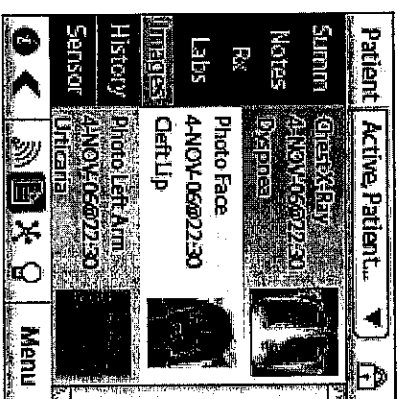
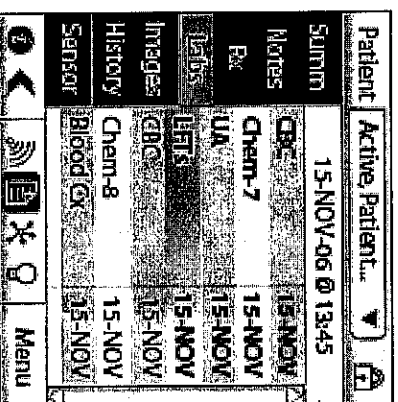
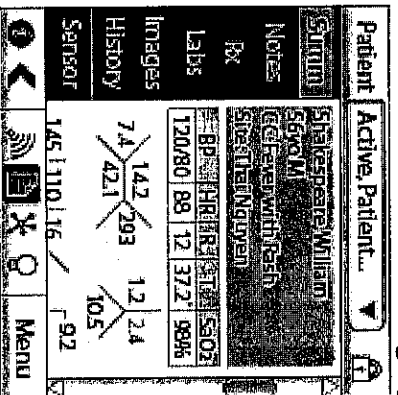
- Lack of access to health care in rural areas
- High cost of patient transportation: financial and morbidity
- Emerging infectious diseases: SARS, Avian Flu
- Wired internet access limited and expensive to expand

Cellular Infrastructure

- Ubiquitous (versus wired internet)
- Growing industry without health care investment
- Wireless (easily deployed)
- Devices relatively inexpensive and portable
- Existing cell phone familiarity and simplified interface (versus PCs)

Electronic Medical Record

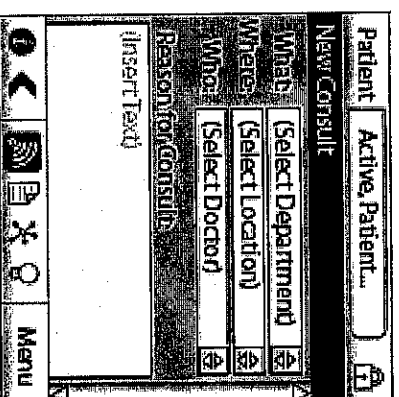
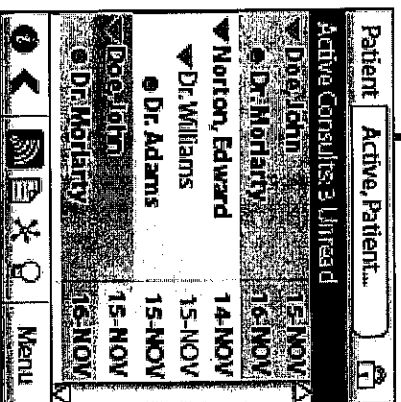
- Central server with database
- Simplified patient information
- Efficient data entry – eventually voice
- New data types



(Old Interface)

Remote Consultation

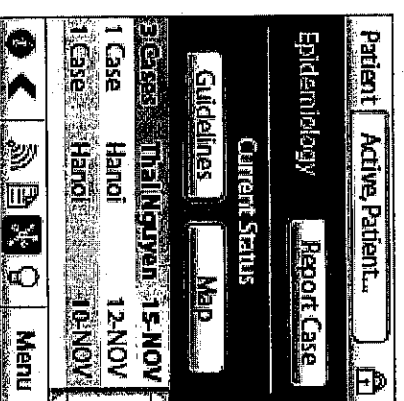
- Doctor or nurse in rural area enters patient data into system
- Doctor at NHP consults and replies with medical opinion



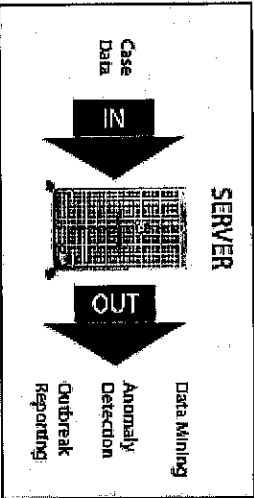
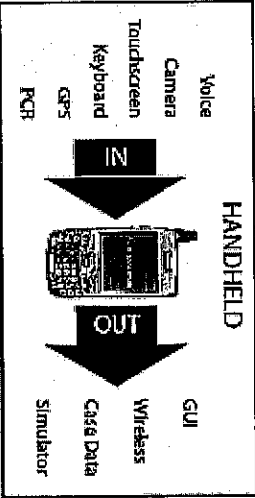
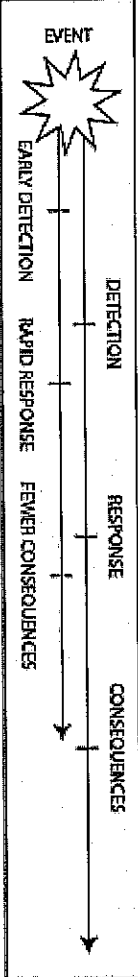
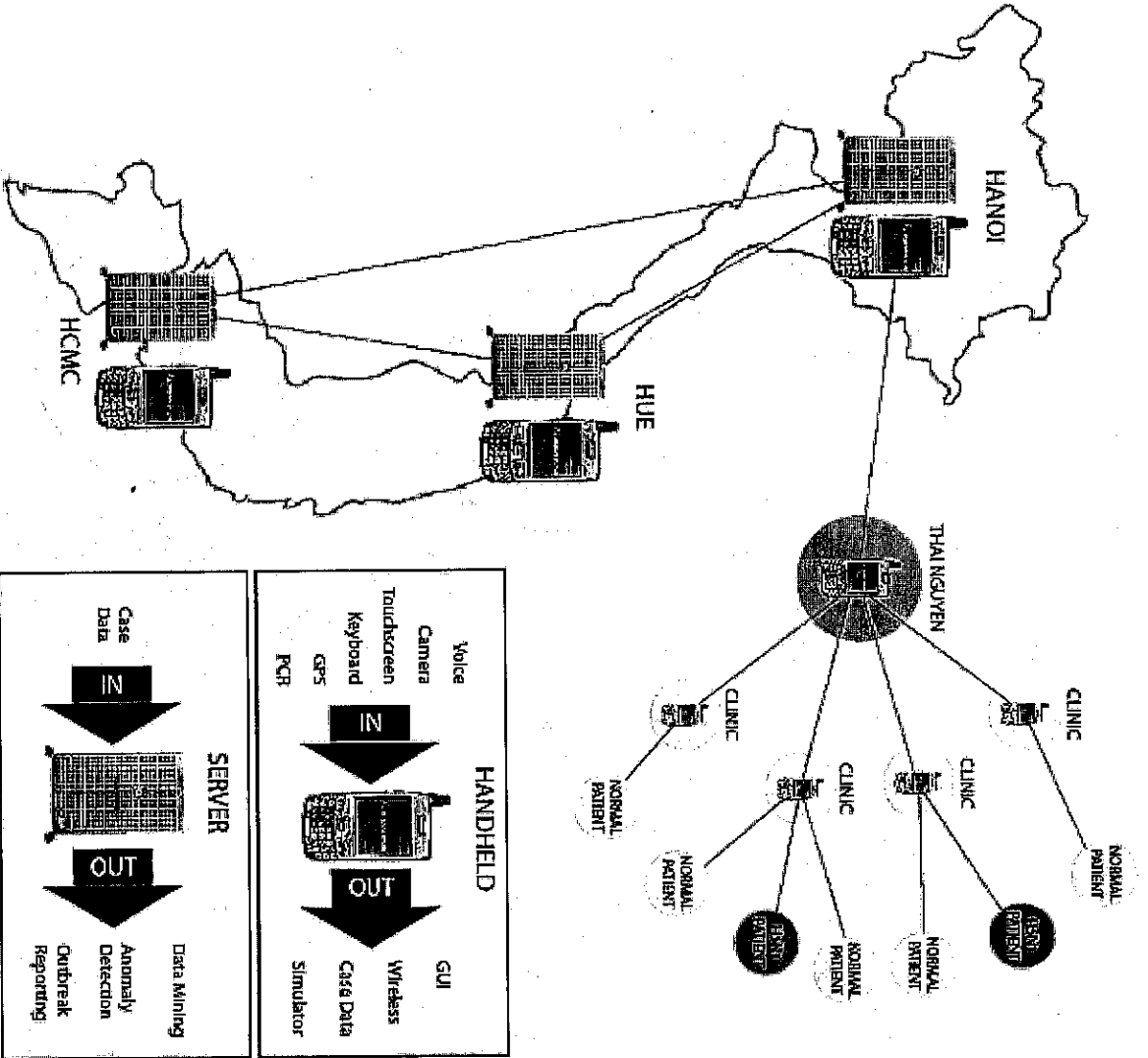
(Old Interface)

Epidemiology

- Sensor network
 - Doctors
 - Hardware
 - Patients
- Data Mining
 - Able to detect an emerging infectious disease before clinical suspicion

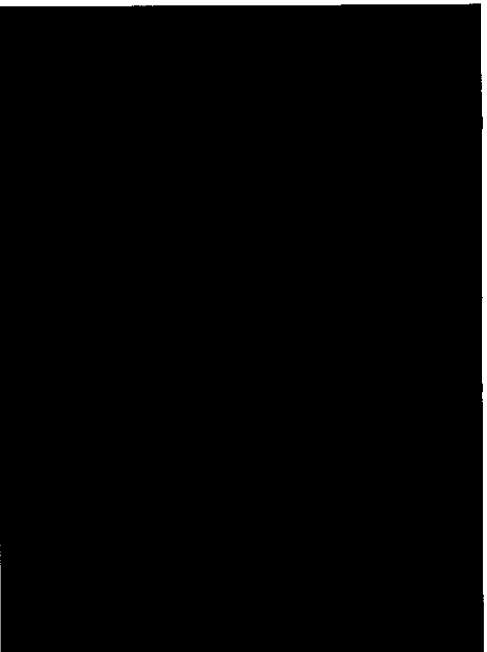


(Old Interface)

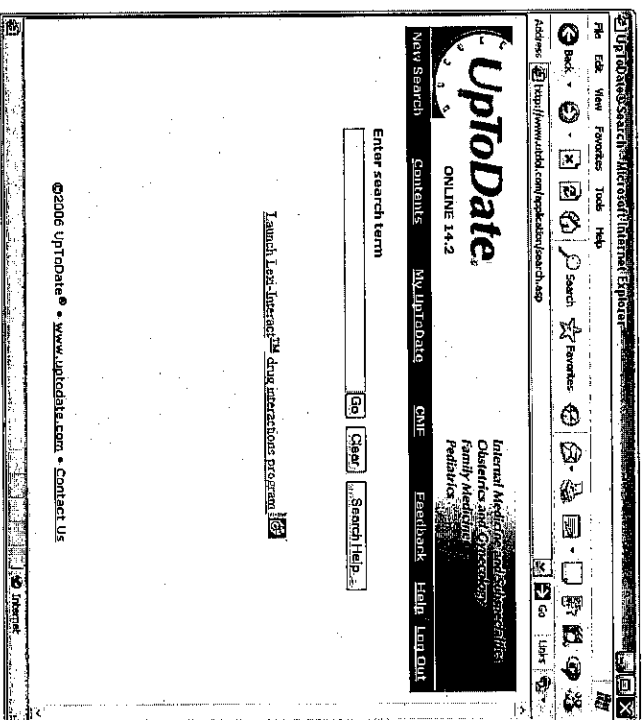


Medical Knowledge

- Internet Web Sites
- Medical Journals

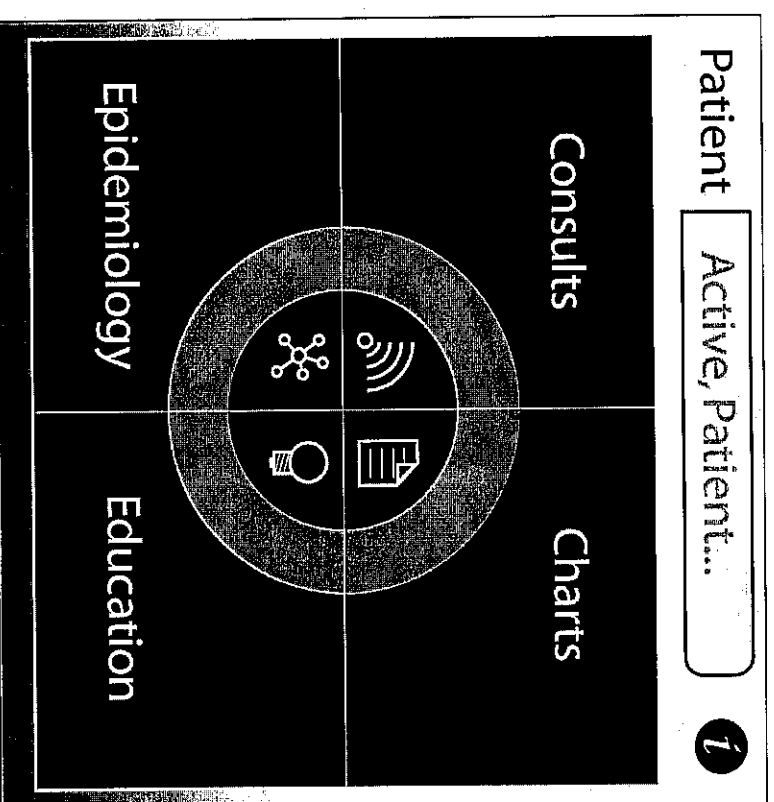


Simulation Video



Design Principles

- Simplicity
- Reliability
- Speed
- Remote Updates
- User interface is currently being redesigned with the latest software tools



(New Interface)

Accessories

- **Now**
 - GPS
 - Camera
- **Future**
 - PCR: rapid identification of infectious diseases
 - Patient ID: barcode, RFID
 - Simulation: procedure training
 - Ultrasound

Sustainability

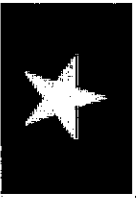
- Ease of use: time spent versus reward
- Purchasing hardware and phone plans: \$\$\$
- Tech support / software updates
- Business Model: physician compensation for remote consultation

The Future

- Integration with Hospital Information Systems
- Patient Access to Medical Information
- Disaster Mode
- Videoconferencing (requires bandwidth)
- Accessories: PCR / Ultrasound
- Interface: Text-to-Speech, Speech Recognition, Mini-Projectors
- Simulation: procedure training
- Decision-support for Physician Extenders

The Big Picture

- Information Therapy: giving the patient and family control of their own data
- Redefining the Hippocratic Oath for the 21st century
- Balancing therapy and technology
- Moving from a superhighway to an information highway for health care



Enjoy the peace

