

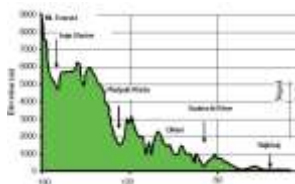
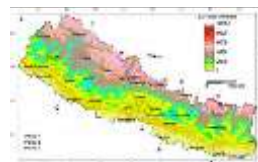


AGRICULTURE WATER MANAGEMENT IN NEPAL AND ACTIVITIES OF NENCID

VP Madhav Belbase

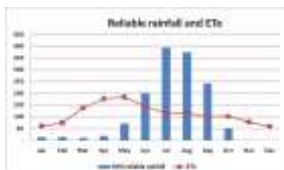
INTRODUCTION

- Nepal posses more than 6,000 rivers draining about 225 BCM of water annually
- Elevation varies from 60 m to 8,848 m
- Climate-sub-tropical monsoon to tundra climate -varies with altitudinal features
- Rainfall varies from 250 mm to 5,000 mm per annum-with average of 1,500 mm
- Irrigation is essential to respond temporal and spatial variation in runoff and rainfall
- Community irrigation since time immemorial

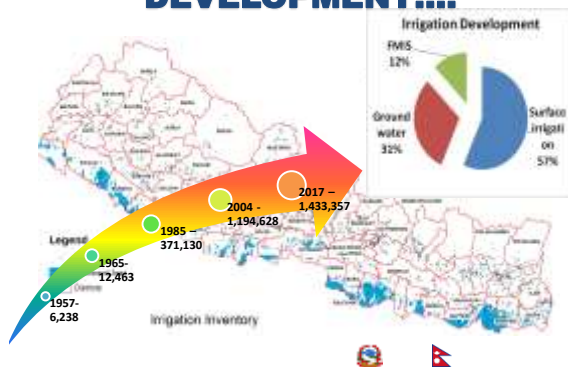


IRRIGATION POTENTIAL AND DEVELOPMENT

Ecological region	Land area (sq km)	Cultivated area (ha)	Irrigable area (ha)
Mountain	51,817	227,000	60,000
Hills	61,345	1,054,000	369,000
Terai	34,019	1,360,000	1,338,000
Total	147,181	2,641,000	1,766,000



IRRIGATION POTENTIAL AND DEVELOPMENT....



PHASES OF IRRIGATION DEVELOPMENT AND MANAGEMENT



PHASES OF IRRIGATION DEVELOPMENT

• Early development phase (before 1956)

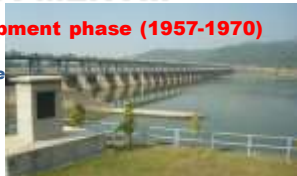
- Community involvement in irrigation systems, few state sponsored schemes
- Civil Code 1854 for system O & M
- State initiation – to develop Modern irrigation systems in 1928



PHASES OF IRRIGATION DEVELOPMENT...

• Infrastructure development phase (1957-1970)

- Focus on basic irrigation infrastructure construction
- Supplementary irrigation facility
- Large Irrigation systems were developed under bilateral agreements and with government resources



PHASES OF IRRIGATION DEVELOPMENT...

• Intensive development phase (1971-1995)

- Focus on command area development and intensive irrigation to enhance production
- CAD up to 25 - 40 ha blocks in large irrigation systems
- Groundwater development in Terai-



PHASES OF IRRIGATION DEVELOPMENT...

• Integrated development phase (1986-1990)

- Focus on hill irrigation
- Integrated with agriculture and forestry sector
- Feasibility study of large projects

Project	District	Period	Donor
Rasuwa Nuwakot	2	1976-93	IDA/UNDP
Sagarmatha	3	1978-88	ADB/IFAD/EEC
Koshi hill	4	1977-85	ODA/UK
Mahakali	3	1980-90	IDA/UNDP
Rapti	5	1980-96	USAID
Karnali-Bheri	3	1981-90	CIDA
Dhading	1	1983-90	GTZ
Seti	5	1986-90	ADB
Mechi	3	1986-	SNV



PHASES OF IRRIGATION DEVELOPMENT...

• Participatory irrigation phase (1991-2012)

- Farmers (WUA) involvement in all steps of projects
- Sector projects-ILC, ISP, SISP, NISP, CMIASP, IWRMP
- Management transfer to WUA
- Command area development



PHASES OF IRRIGATION DEVELOPMENT...

• Irrigation modernization phase (2012-to date)

- Focus on year round irrigation
- Physical rehabilitation of irrigation systems
- Extension of micro irrigation



POLICY TOOLS IN IRRIGATION DEVELOPMENT

- **Basic Needs Fulfillment Policy 1985**
 - Min requirement of 2,250 cal/person/day
 - Irrigation area target - 1.25 mill ha
 - Self sufficiency in 6 major food grains
- **Irrigation Policy 1989**
 - Involvement of beneficiary farmers in irrigation projects from design to O&M
 - Provision of irrigation management transfer to registered WUA
 - Focus on conjunctive use of surface and groundwater irrigation
- **Irrigation Policy 1992**
 - In line with WR Act 1992
 - Strengthen WUA for making responsible of irrigation systems
 - Uniform implementation policy in all donor funded projects/programs
 - Regional balance irrigation development
- **Agriculture Perspective Plan 1995**
 - Focus on irrigation as one of the 4 components of agriculture development
 - Emphasis on intensification and diversification of agriculture
 - Focus on groundwater irrigation in Terai
 - Targeted to construct 50 DTW and 8,800 STW per year-24,000 ha /year

POLICY TOOLS IN IRRIGATION DEVELOPMENT...

- **Water Resources strategy 2002**
 - Adopted principles of IWRRM
 - Focus on irrigation investment
 - Encourage to commercial agriculture
 - Discourage land fragmentation for effective utilization of lands
 - Targets for short, medium and long term irrigation development
- **Irrigation Policy 2003**
 - Guided by IWRRM principles and decentralization policy
 - Focus on year round irrigation
 - Plans for inter-basin transfer
 - Plans to involve private sector in irrigation
 - Plans to declare irrigation command area
 - Plans for quantitative water allocation for irrigation service
 - Irrigation self insurance to natural calamities
- **National Master Plan 2005**
 - Prepared short, medium and long term plan for implementation
 - Integrated program for irrigated agriculture
 - Management improvement of existing irrigation systems
 - Improvement in modernization and implementation of new schemes
 - Enhancement of local institutions for project preparation and implementation
 - Capacity building of beneficiary farmers
- **Irrigation Policy 2013**
 - Expansion of irrigated area to all cultivated areas
 - Focus on storage and inter-basin transfer projects for year round irrigation
 - Sustainable management of existing systems

IRRIGATION INSTITUTIONAL DEVELOPMENT

- **Irrigation Department – established in 1952- with 4 professionals in Singhadurbar**
- **Department of Irrigation and Water Supply (1962-1972) at Panipokhari**
 - Morang Division
 - Chandranahar Division
 - Kathmandu Division
 - Bhairahawa Division
- **Department of Irrigation, Hydrology and Meteorology (DIHM-1972 to 1989)**
 - Establishment of Regional Directorates-5 nos and Expansion of Division/Sub-divisions
- **Department of Irrigation (1989 - to date)**
 - Establishment of District Irrigation Offices in 1989
 - Restructuring to Division/Sub-division Offices in 1999
 - Existing Divisions/Sub-divisions
 - Irrigation Development Divisions-57 nos
 - Irrigation Development Sub-divisions-16 nos
 - Irrigation Management Divisions-13 nos
 - Groundwater Irrigation Divisions-11 nos
 - Mechanical Divisions-3 nos
 - ~1800 staffs
- **Department of Water Resources and Irrigation from July 2018**

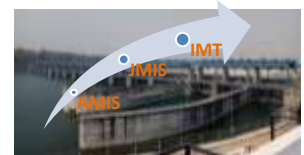
TECHNOLOGICAL DEVELOPMENT

- **Domination of run-of-the river schemes**
 - Simple intakes for diversion
 - Few storage type schemes- Begnas, Phewa, Banganga
 - Headworks across the river
- **Focus on rehabilitation/modernization of FMIS**
 - Sector projects
 - MIP
 - Rajapur and Rani Jamara
- **Initiation for year round irrigation**
 - ✓ Interbasin transfer
 - Bheri-Babai
 - Sunkoshi-Martin
 - Sunkoshi-Kamala
 - Kaligandaki-Tinau
 - Trisuli - Chitwan
 - ✓ Conjunctive use with groundwater



MODERNIZING IRRIGATION MANAGEMENT

- **State owned systems**
 - Agency management
 - Joint management
 - Management Transfer
- **Farmer owned systems**
 - Farmer management
 - Rehabilitation
 - Modernization
 - Transfer from subsistence farming to commercial farming
 - Cooperative farming





LOOKING FORWARD

- **Year round irrigation to all cultivated lands**
- **System modernization with cost effective water management-volumetric supply**
- **Autonomous irrigation management board**
- **Public Private Partnership in irrigation development**
- **Multipurpose and storage water projects**
- **Decentralized irrigation governance for medium and small systems**
- **Encourage commercial farming**



Activities of NENCID

- Irrigation Day
Every Year on Chaitra 25 of Nepali calendar (April 8) – to commemorate the establishment of Irrigation Department
- Nepal National Water and Weather Week
– Nepal National Water and Weather Week is celebrated every year in collaboration with various government and non-government organizations including



8th Asian Regional Conference

8 ARC was organized jointly by GON and NENCID on May 2-4, 2018 in Kathmandu. The theme of the conference was *"Irrigation in Support of an Evergreen Revolution"*.



YP Training



It was organized on
May 2, 2018

Thanks to KCID for
the support

