



# **Watershed Management in India & AP: Achievements and**

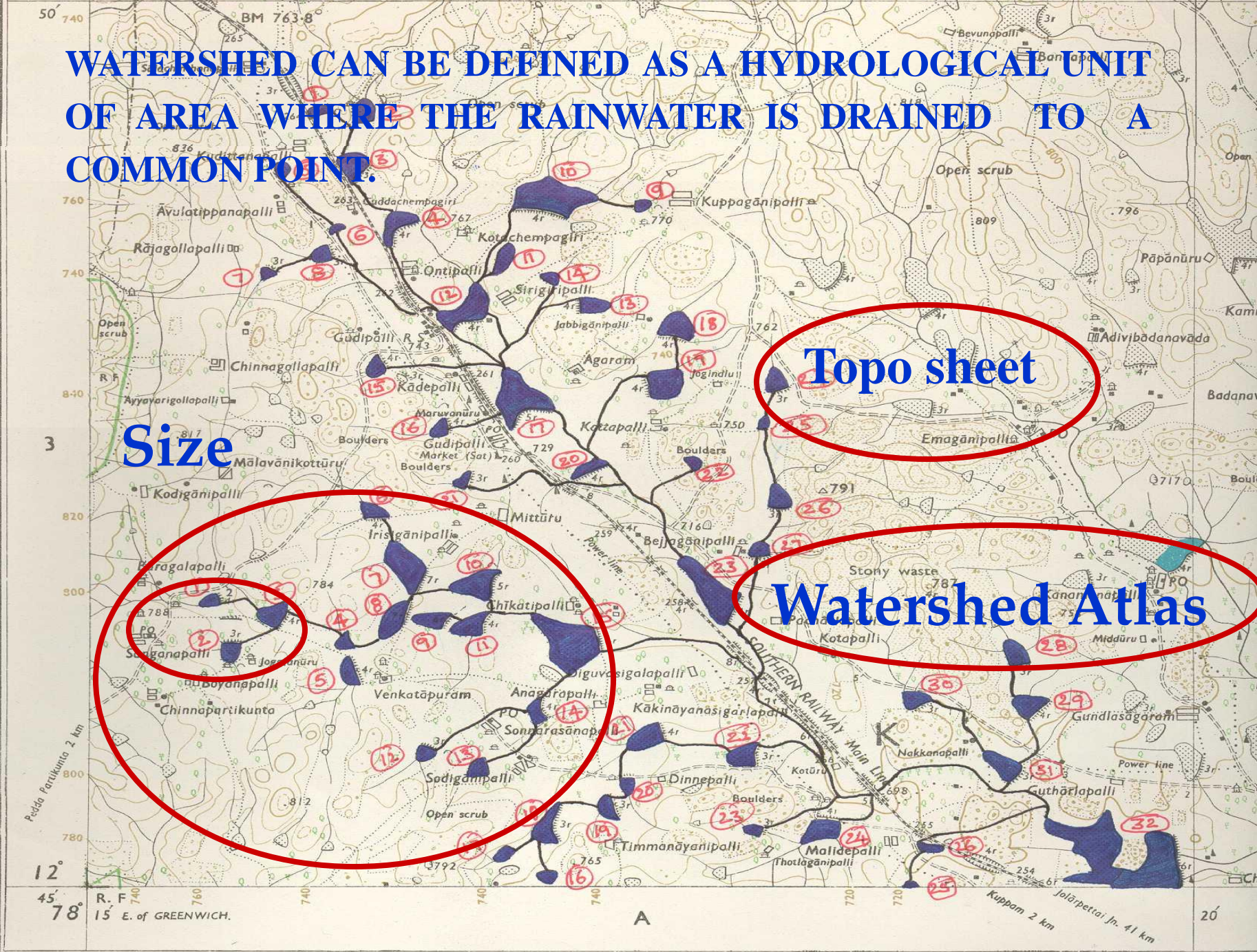
**Dr.Kota Tirupataiah, IFS**

**WATERSHED CAN BE DEFINED AS A HYDROLOGICAL UNIT OF AREA WHERE THE RAINWATER IS DRAINED TO A COMMON POINT.**

**Topo sheet**

**Size**

**Watershed Atlas**



# WATERSHEDS - WHY ?

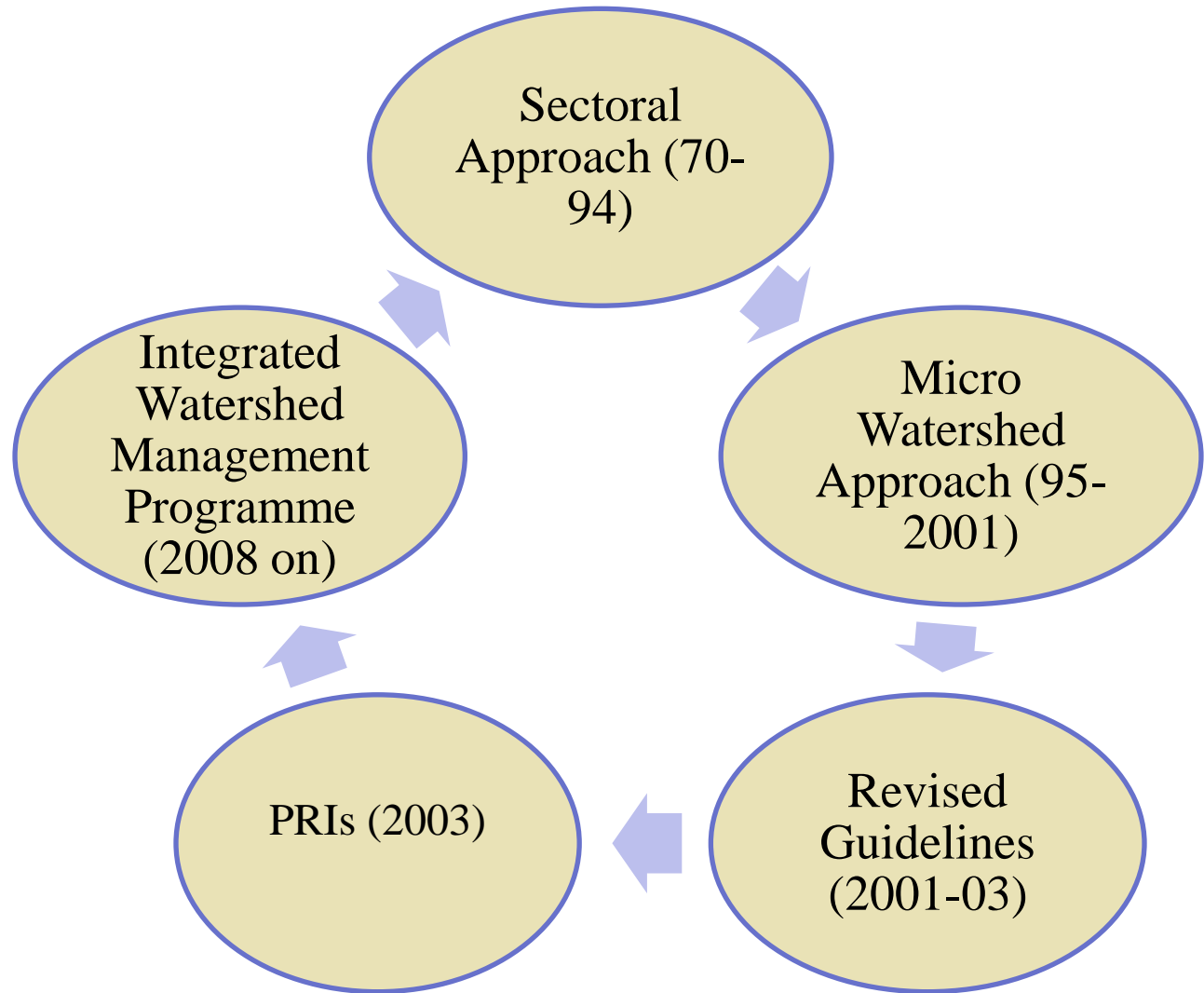
- Hydrologically, watershed is defined as an area from which the runoff drains through a particular point in the drainage system.
- Soil, water and vegetation are the three natural resources addressed in watershed management
- Human interventions for agricultural purposes, changed ecology and management practices led to land degradation.
- Watershed management is the time tested method of arresting the degradation of natural resources

# Climatic Regions covered in AP

<b>Region</b>	<b>Programme</b>	<b>Funding Pattern Rs.lakhs</b>
<b>Hot Arid</b>	<b>DDP</b>	<b>22.50</b>
<b>Semi-Arid</b>	<b>DPAP</b>	<b>20.00</b>
<b>Dry Sub-Humid</b>	<b>DPAP</b>	<b>15.00</b>

All other regions covered under IWDP/JRY/EAS with Rs.20 lakh outlay

# Evolution of Watershed Approaches



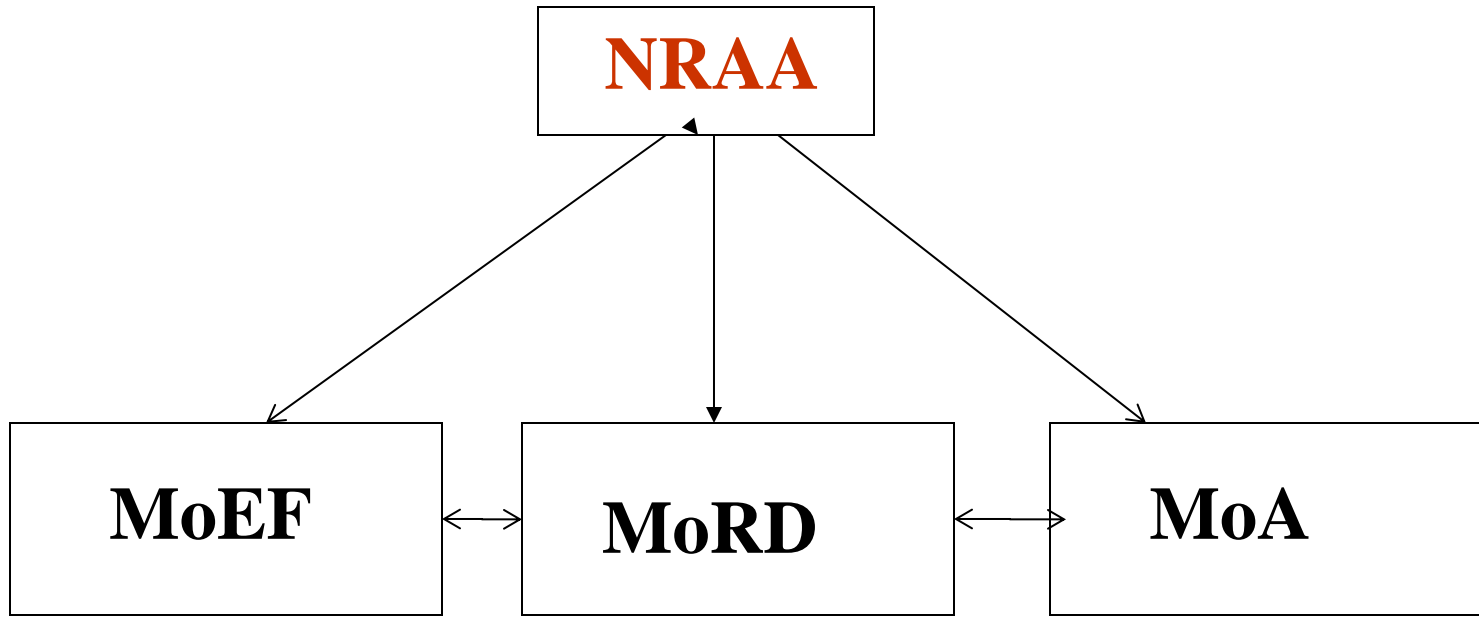
# **Watershed Development Programmes**

- **Drought Prone Areas Programme(DPAP)**
- **Desert Development Programme(DDP)**
- **Integrated Waste Lands Development Programme(IWDP)**

**From 2008, all the above programmes are merged in to Integrate Watershed Management Programme (IWMP)**

**Centrally Sponsored Programmes- 75:25**

# NRAA and Convergence

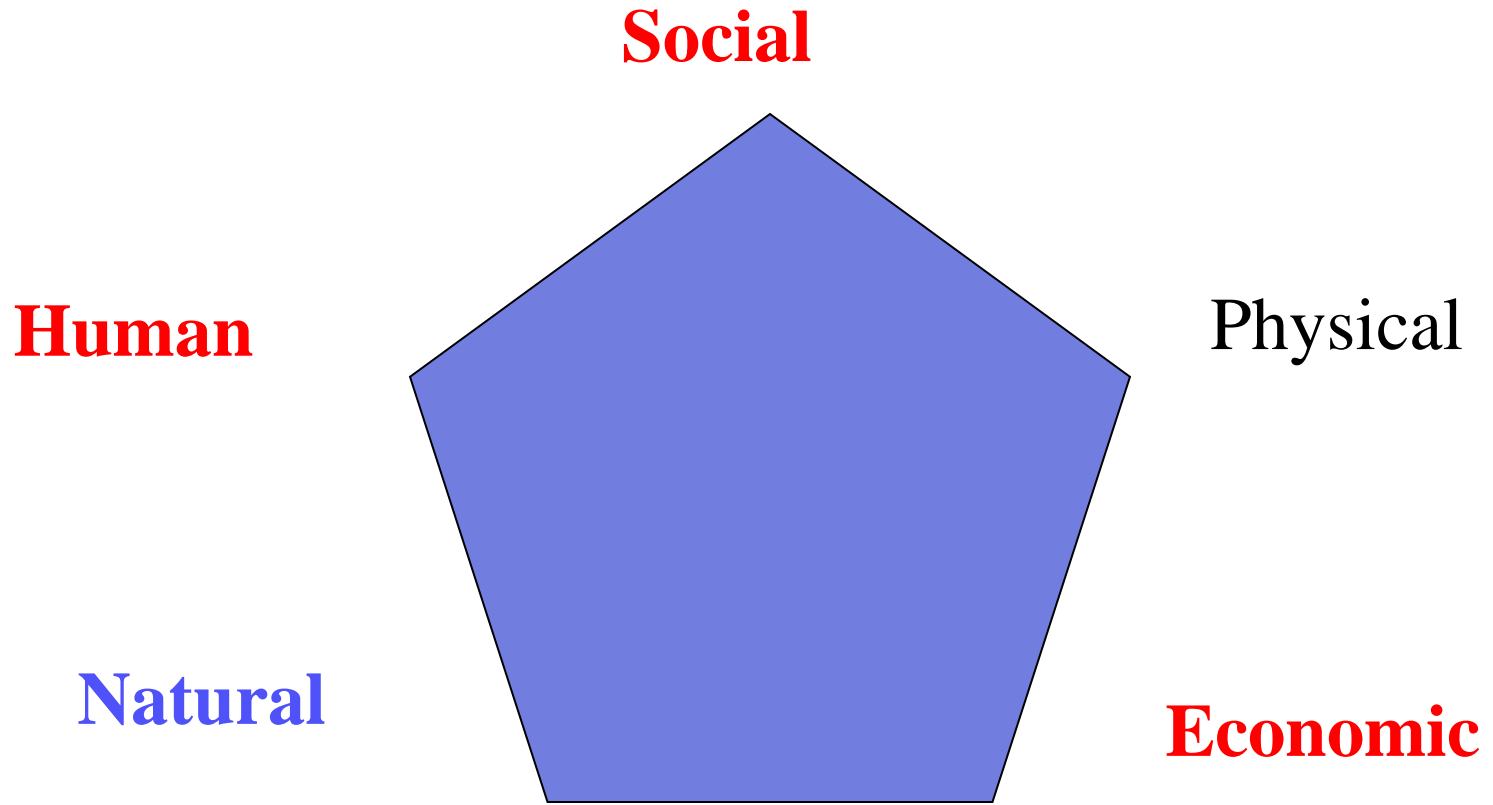


# Myths in Watershed Projects

- **Watersheds are in the grip of land lords- Committees headed by influential**
- **Watershed funds are for landed people only- cannot spend on non-land based initiatives**
- **Watersheds are for men only- Women do not own land and hence no role**
- **Watershed fund is mainly for construction works- COW-**
- **After watershed project period no activity goes on- Make hay while the sun shines**



# ***Sustainable Livelihoods Five Capitals***



# **Innovative Approaches in NRM**

- **Watershed Plus Approach**
- **Watersheds as a platform for livelihoods**
- **Cost effective structures**
- **Provision for landless families**
- **Net Planning to benefit ridge areas**
- **Institutionalizing Capacity Building**

# Change in the approach to NRM

- Implementation through VOs of Women SHGs.**
- Focus on the lands of poor.**
- Preparation of action plans by User Groups / Village Organizations (VO).**
- Participatory net planning.**
- Probation phase for watersheds.**
- Cost effective structures.**
- Management of Common Property Resources by the poor with usufruct rights.**

# SELECTION PARAMETERS FOR A WATERSHED

		Range	Mark	Weightage
1.	No. of small and marginal farmers	< 25%	5	
		> 25 & <50%	10	
		> 50%	15	15
2.	% of SC/ST holding out of total	<10%	3	
		> 10 & <25%	5	
		> 25%	10	10
3.	% of women organized in SHGs in the habitation and participating in programm	< 20%	3	
		> 20% & <50%	5	
		> 50%	10	10
4.	Status of ground water	< 10 mts	2	
		> 10 & <15 mts.	3	
		> 15 mts	5	5
5.	APSRAC	VL	6	
		L	12	
		M	18	
		H	24	
		VH	30	contd

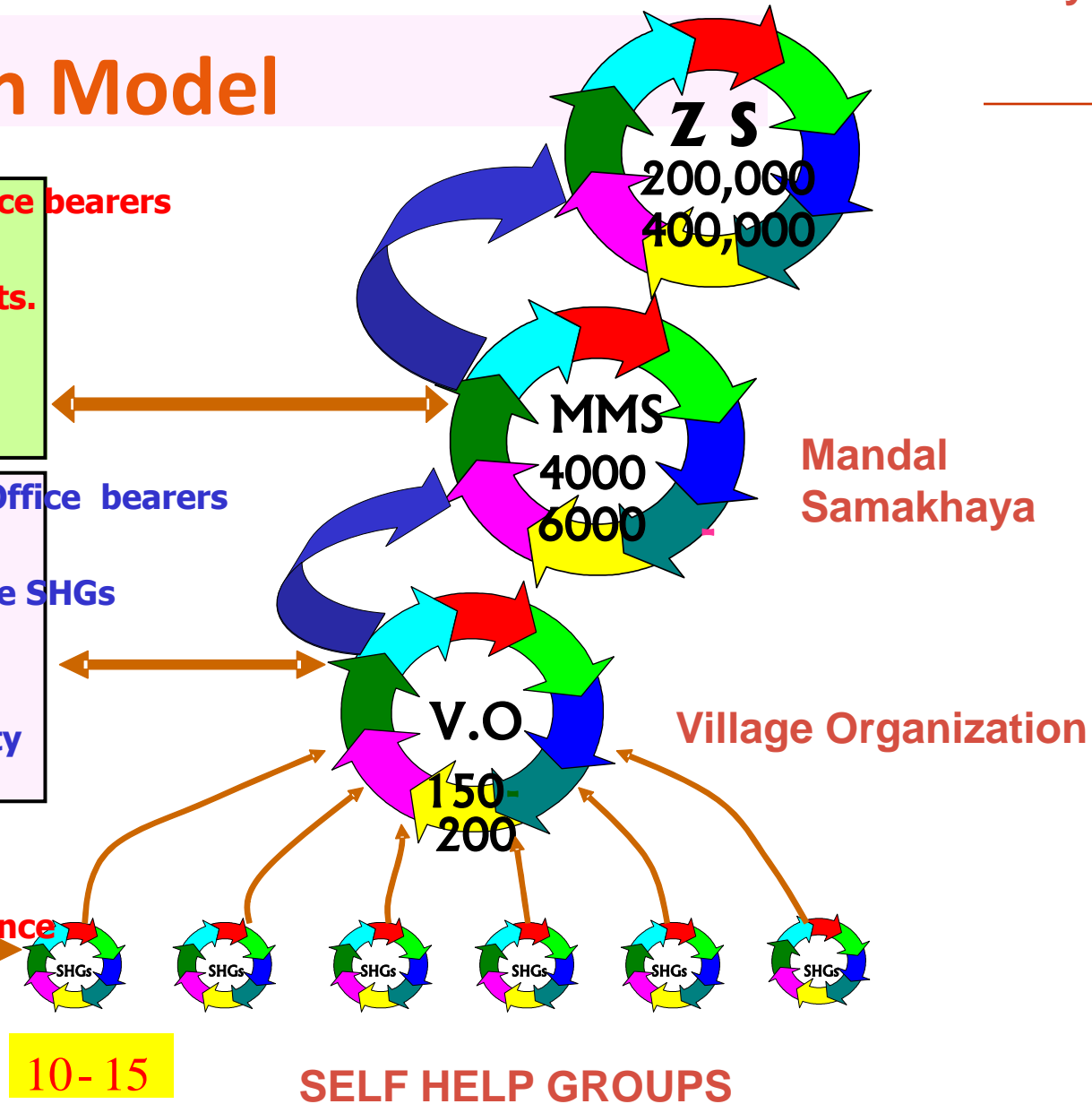
6.	Live stock	<1000 (Nos.)	2	
		> 1000 & < 2000	3	
		>2000	5	5
7.	No. of families affected/involved in migration and landless people involved in wage employment	< 50	3	
		>50 & < 100	5	
		>100	10	10
8.	Contiguity and macro watershed for saturation			
		Yes	5	
		No	0	5
9.	Availability of fallow/waste/CPR for the poor to utilize usufruct and willingness of community to permit usufruct to landless	<10%	3	
		>10% & <20%	5	
		>20%	10	10
			<b>TOTAL</b>	<b>100</b>

# A.P Federation Model

- E.C- 2 from each V.O, 5 Office bearers
- Support to VOs
- Secure linkage with Govt depts. fin institutions, markets
- Auditing of the groups
- Micro Finance functions

- E.C- 2 from each S.H.G, 5 Office bearers
- Strengthening of SHGs
- Arrange line of credit to the SHGs
- Social action
- Village development
- Marketing and food security
- Support activists – 3 -5

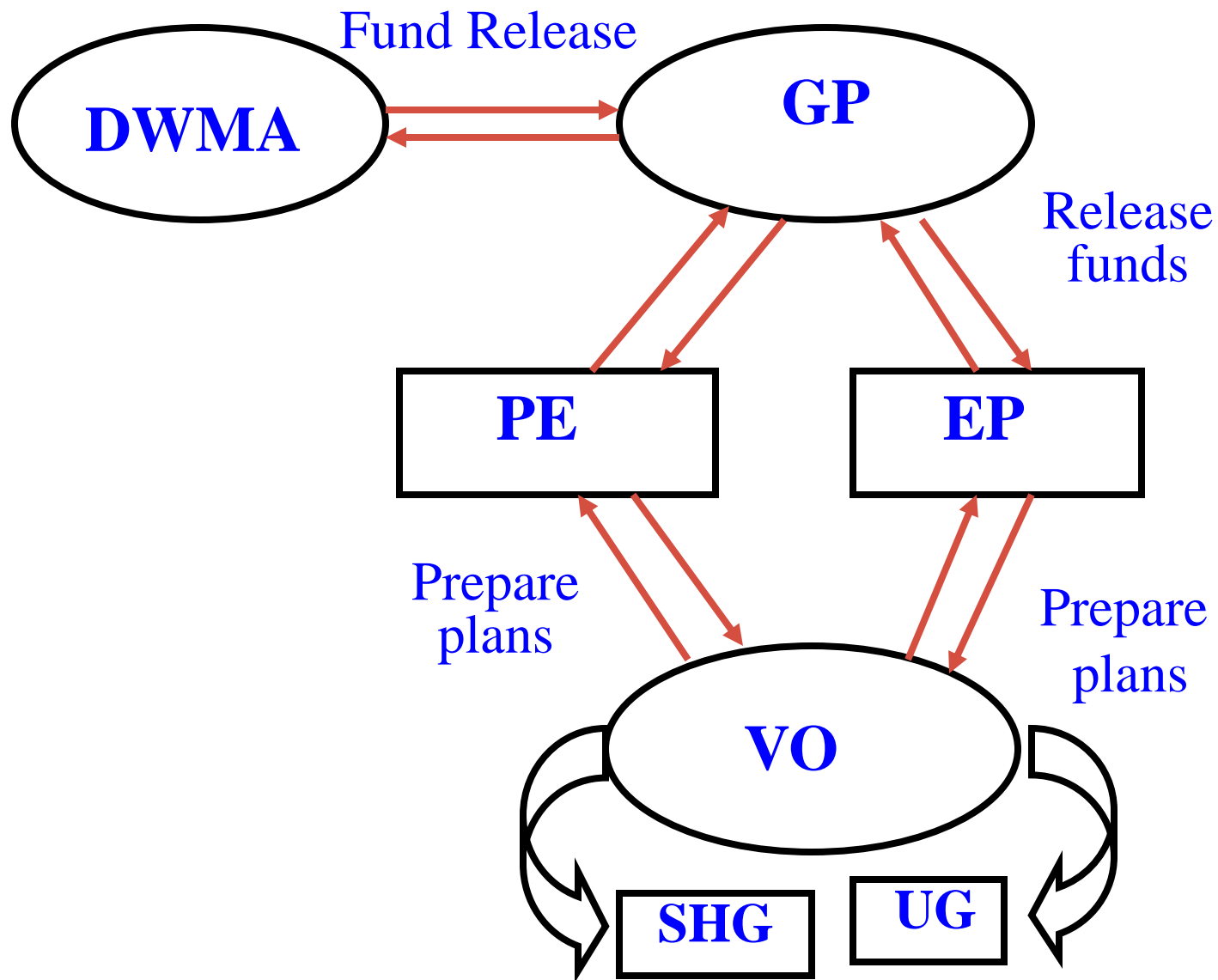
- Thrift and credit activities
- Monitoring group performance
- Micro Credit Planning
- Household inv plans



10-15

SELF HELP GROUPS

# Fund Flow Arrangements



# Livelihood Approach in Watersheds

<b>Works</b>	<b>85%</b>	<b>25.50 lakhs</b>
<b>Administrative Cost</b>	<b>10%</b>	<b>3.00 lakhs</b>
<b>Capacity Building &amp; CO</b>	<b>5%</b>	<b><u>1.50 lakhs</u></b>
	<b>Total</b>	<b><u>30.00 lakhs</u></b>

<b>NRM</b>	<b>60%</b>	<b>18.00 lakhs</b>
<b>Productivity Enhancement</b>	<b>15%</b>	<b>4.50 lakhs</b>
<b>Enterprise Promotion</b>	<b>10%</b>	<b><u>3.00 lakhs</u></b>
	<b>Total</b>	<b><u>25.50 lakhs</u></b>



# IWMP-Component break up

	<b>Administration</b>	<b>Monitoring</b>	<b>Evaluation</b>	<b>Total</b>
	<b>10</b>	<b>01</b>	<b>01</b>	<b>12%</b>
<b>Preparatory stage</b>	<b>Entry point activity (04%)</b>	<b>Institution &amp; Capacity Development (05%)</b>	<b>DPR Preparation (01%)</b>	<b>(10%)</b>
<b>Works Phase</b>	<b>Works (50%)</b>	<b>Livelihoods for assetless (10%)</b>	<b>PE&amp;EP (13%)</b>	<b>73%</b>
<b>Consolidation Phase</b>				<b>05%</b>

# ***Productivity Enhancement Components in APRLP***

- ❑ **Soil Fertility Management**
- ❑ **Micro Nutrient Management**
- ❑ **Seed Production/ Seed Banks**
- ❑ **Para workers in Agriculture and Livestock**
- ❑ **Integrated Pest Management**
- ❑ **Door step Health services and artificial insemination in Livestock**
- ❑ **Fodder Development**
- ❑ **Integrated Livestock Development Centers**



***DISTRIBUTION OF SEED BY VO***





## **ILDC-Integrated Livestock Development Centers**



*Fodder cultivation in watersheds*

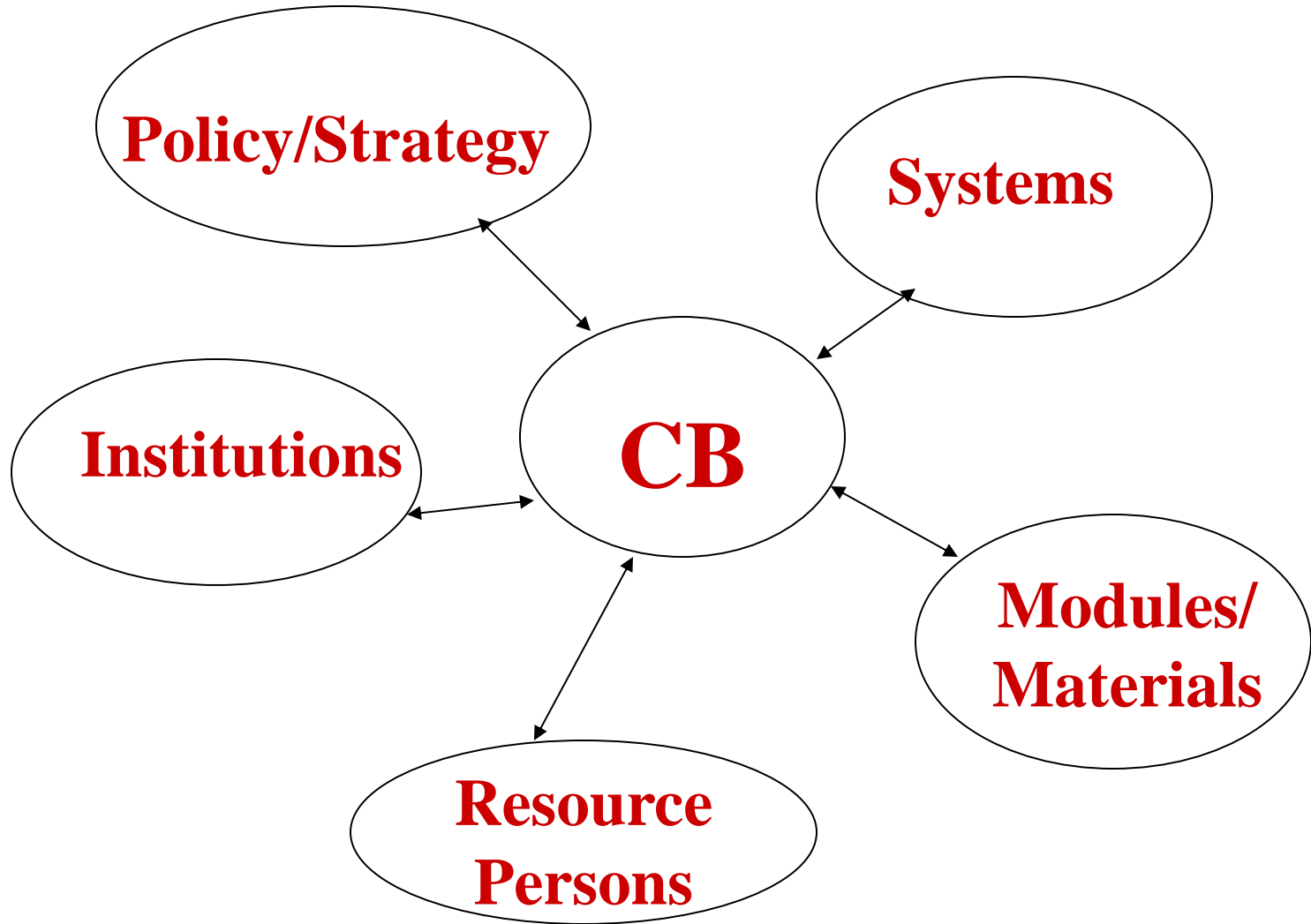


**Traditional Livelihoods**



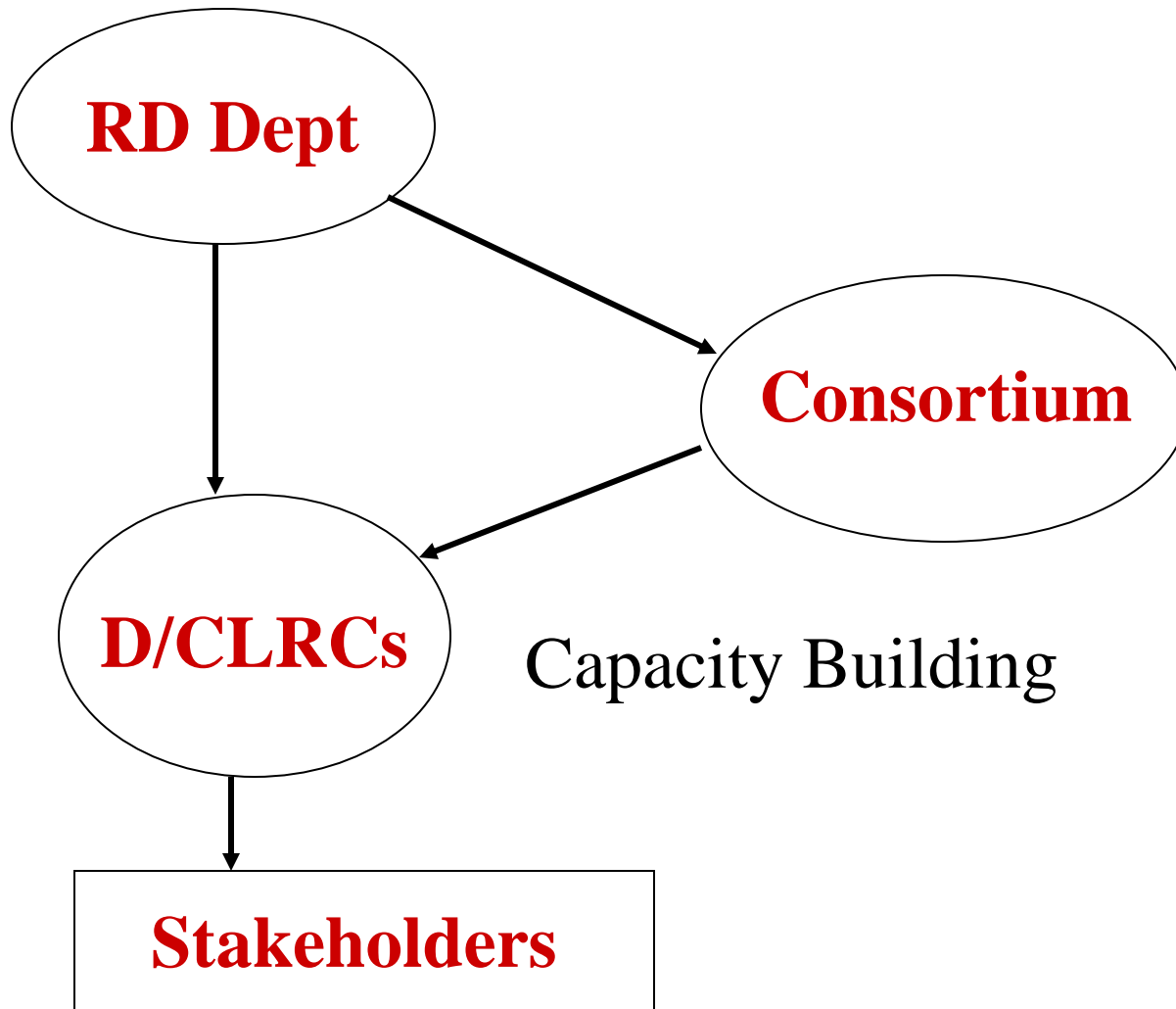
**Value Addition at Source**

# CB Components

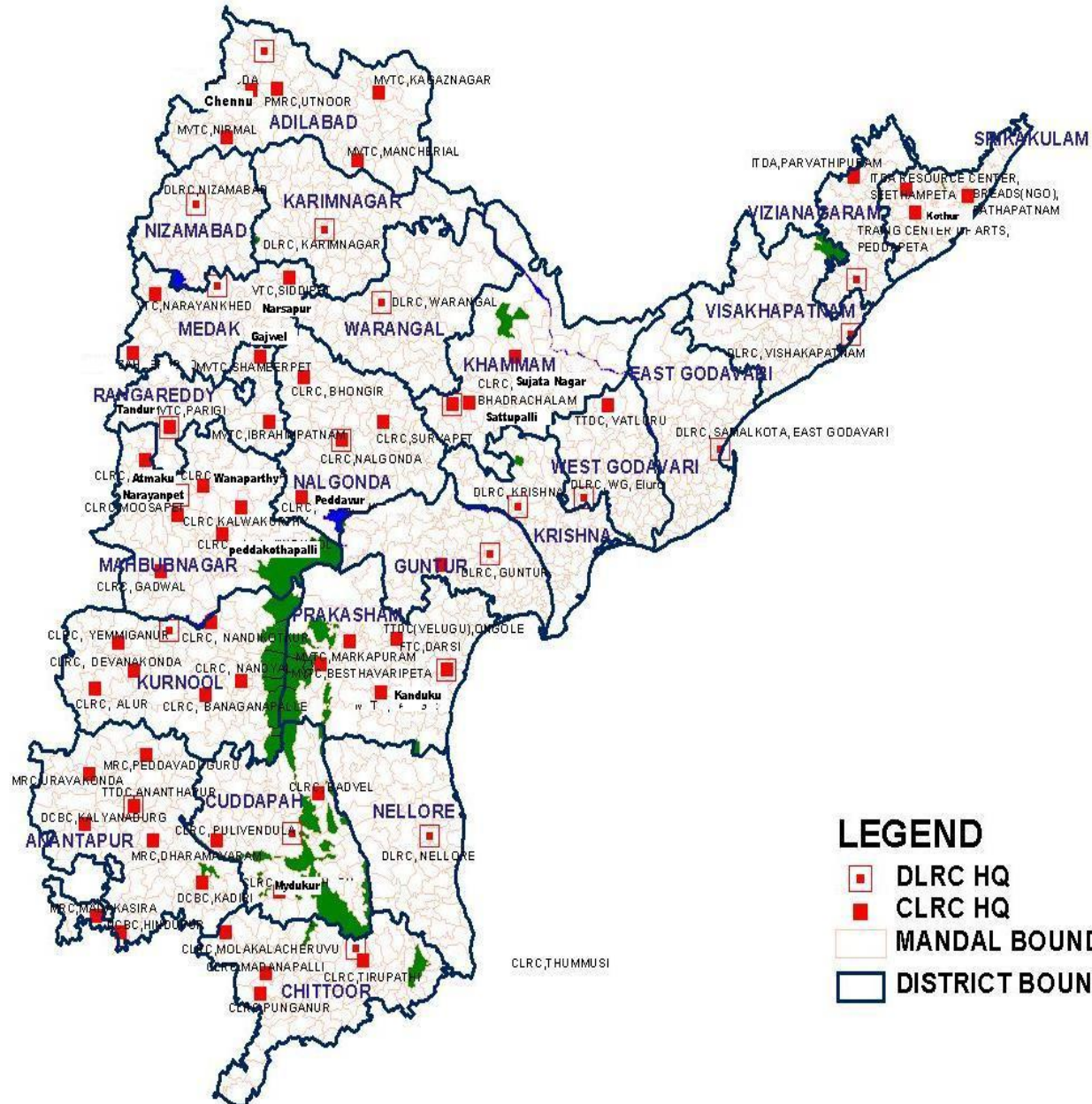
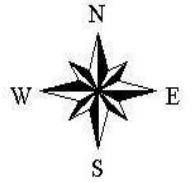




# ***The Context***



# SPATIAL DISTRIBUTION OF DLRC/CLRCs



## LEGEND

- DLRC HQ
- CLRC HQ
- MANDAL BOUNDARY
- DISTRICT BOUNDARY

# SEPARATE INSTITUTIONAL STRUCTURE

- 1. ACF
- 2. Dy. EE
- 3. ADA
- 4. FRO
- 5. AE
- 6. AO

Commissioner  
Rural Development

Project Director,  
DPAP/DDP

Multi Disciplinary Teams  
(MDTs)

Project Implementing Agency  
(PIA)

Watershed Development Team  
(WDT)

Watershed Association  
(WA)

Watershed Committee  
(WC)

Self Help Groups

User Groups

District Collector

GO/NGO

- Disciplines
- 1. Agriculture
  - 2. Engineering
  - 3. Forestry

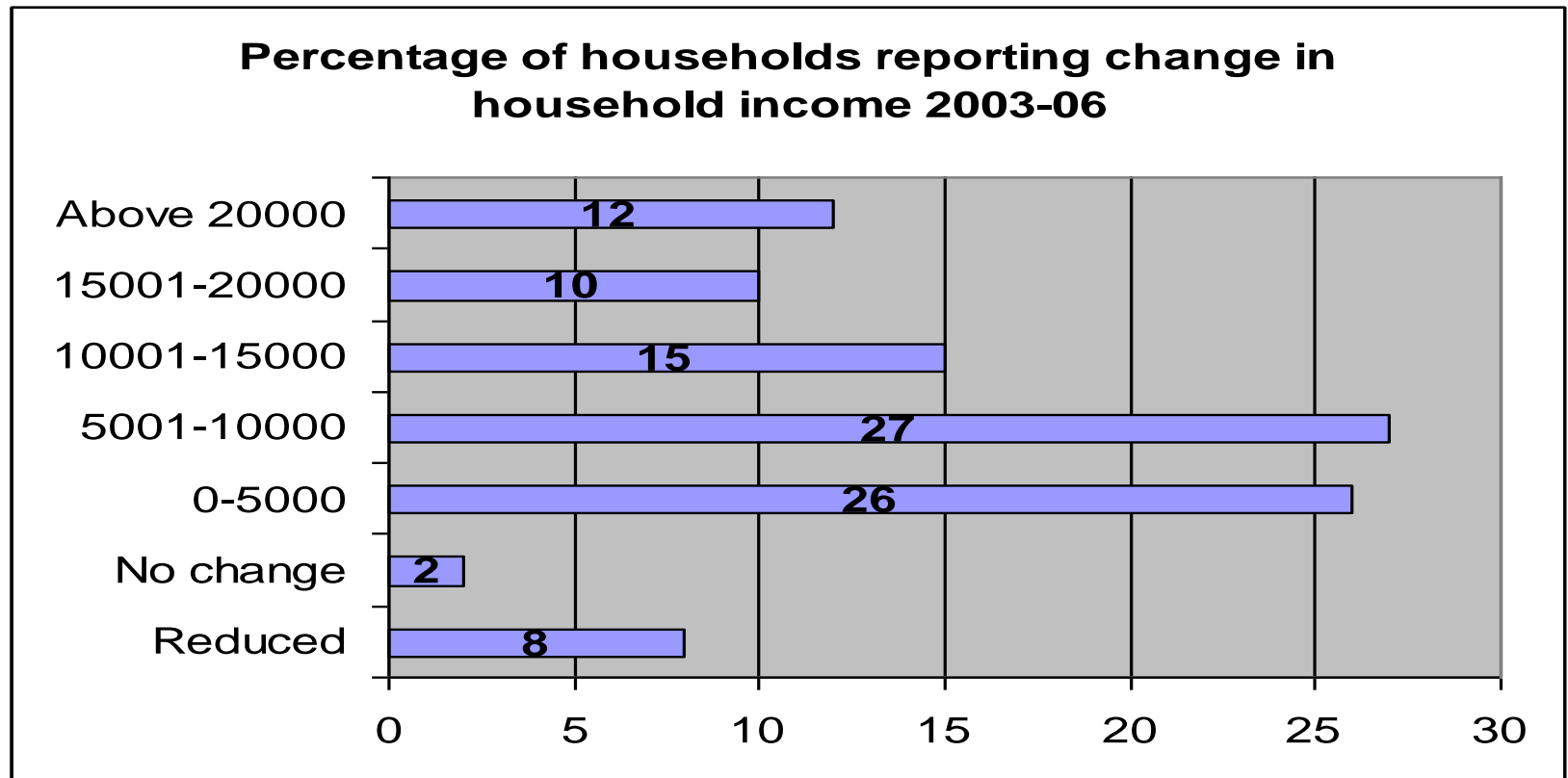
GP

VO

# Impact Assessment by TARU

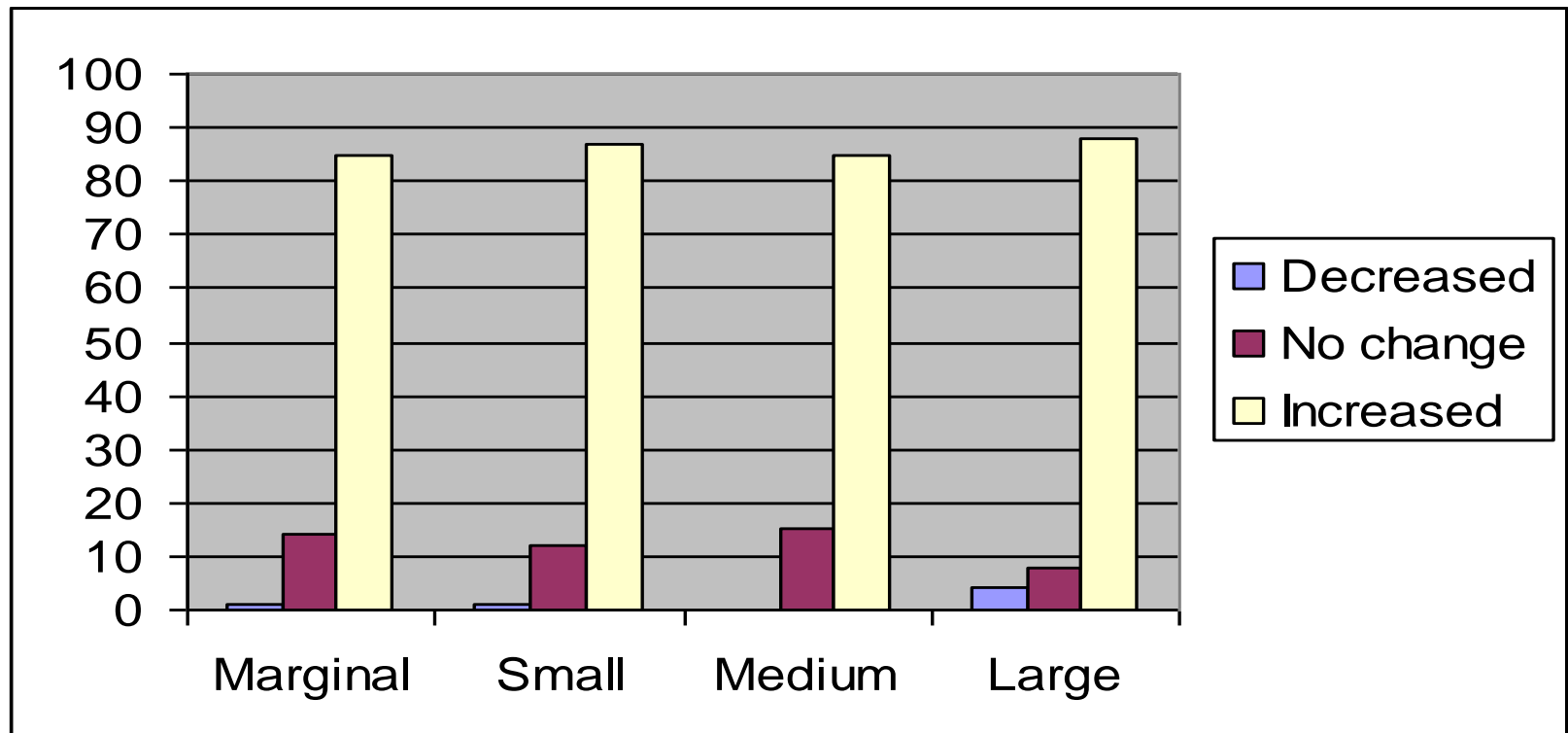
## Leading

- About 90 percent of households reported increase in income.
- 37 to 39 percent of households reported an annual increase in income greater than Rs.10,000



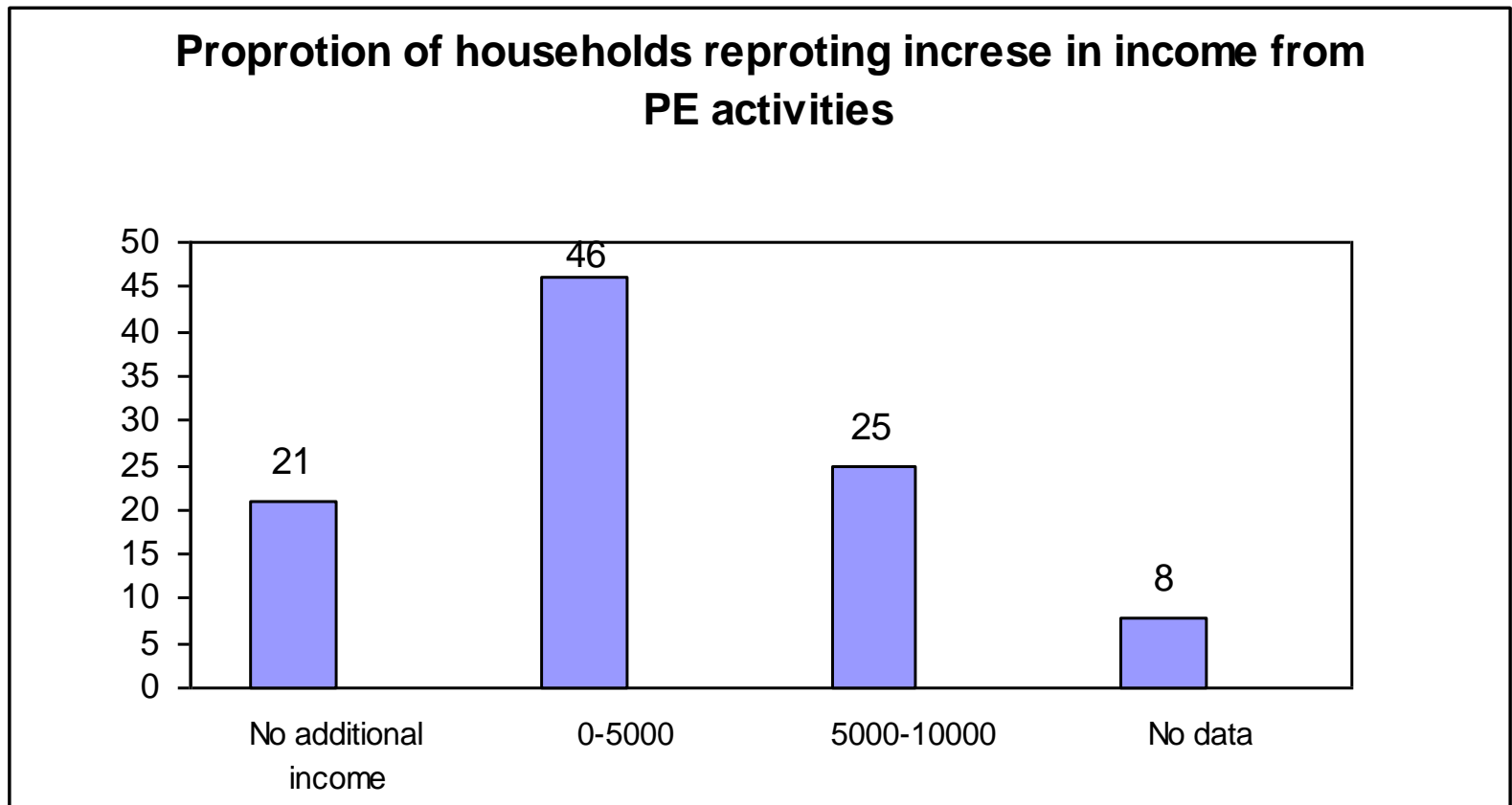
# Impact Assessment (Contd...)

- Around 85% of households belonging to all farmer categories reported increased returns from agriculture.



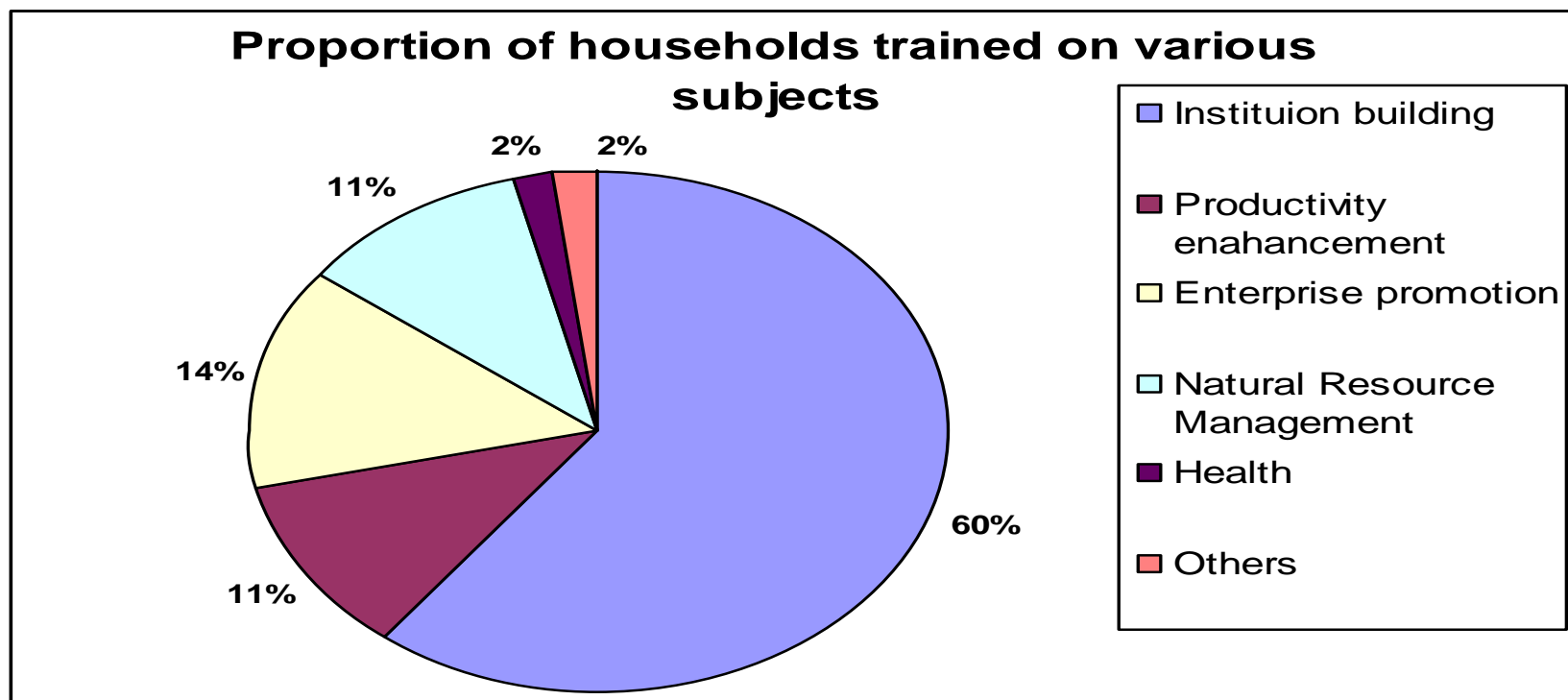
## Impact Assessment (Contd...)

- 71% of households reported increased returns from Productivity Enhancement.



# Impact Assessment (Contd....)

- 60% of households reported trainings in Institution Building and Group Dynamics followed by 14% in Enterprise Promotion.



# References

- **Planning Commission approach paper on NRM for XI Five Year Plan**
- **Watershed Guidelines of Ministry of RD- 1994-95,2001,2003 and 2008([www.dolr.nic.in](http://www.dolr.nic.in))**
- **Four Waters Concept-Dr.T.Hanumantha rao(published by ESCI, Hyderabad)**
- **Process Guidelines of Dept. of RD, GOAP**
- **Trainings for Watersheds by MYRADA**
- **Please visit our web site [www.rd.ap.gov.in](http://www.rd.ap.gov.in)**



# Issues and Challenges

- **Setting up institutions at various levels**
- **Developing a cadre of watershed specialists**
- **Institutionalizing Capacity Development**
- **Use of ICT Tools in Watershed management**
- **Professional management of projects**
- **Standardizing indicators for impacts**

**Convergence with NREGP**

# *Conclusion*

- **DWDU to provide support on a continuous basis- not made mandatory**
- **PIA to shift focus from implementation to management support services**
- **PIA to shift focus from territorial base to strategic/regional support**
- **Institutions like D/CLRCs anchored by Reputed NGOs can deliver these services**
- **Convergence with Other RD Schemes especially NREGA and NMRPE**

# Watershed Management Programmes

<b>Ministry</b>	<b>Programme</b>
<b>Agriculture</b>	<b>NWDPRA,RVP</b>
<b>Environment &amp; Forests</b>	<b>RVP,Watershed prog.</b>
<b>RD</b>	<b>IWMP(DPAP/DDP/IWD P)</b>

# Micro-watershed approach

- 1995-96- Micro watershed guidelines issued based on Dr. Ch.Hanumantha Rao committee recommendations
- Micro-watersheds of an average size of 500 ha are proposed as projects for implementation
- DPAP extended to cover 94 blocks of 11 districts and DDP in 16 blocks of Ananthapur district.
- EAS,IWDP schemes also brought under the guidelines.
- Period of implementation is 4 years
- Fund sharing between centre and state for DDP 75:25 while for other programmes it is 50:50

# Revised Guidelines 2001

- **Unit cost increased from Rs. 4000/ha to Rs. 6000/ha for all programmes**
- **Funding pattern changed to 75:25 between centre and state for all programmes**
- **Project period increased to 5 years**
- **All other aspects of implementation remained as given in 1995-96 guidelines**

# Haryali Guidelines-2003

- **Issued in 2003 came in to effect from 2003-04**
- **Panchayat Raj Institutions given primary responsibility of implementing the watershed projects**
- **Role of NGO s as PIAs discontinued**
- **All other aspects remained the same**

# New Common Watershed Guidelines

- **Effective from 1st April 2008**
- **Common for all departments**
- **NRAA Coordinates technical support**
- **Lessons from DFID funded Livelihoods projects  
AP Largely incorporated**

# Watersheds – Component allocation

Inception Guidelines (upto 2000-01)	1. Admn. Cost	-	10%	} 4 yrs.
	2. Commtly. Organ.	-	6%	
	3. Training	-	9%	
	<b>4. Works</b>	<b>-</b>	<b>75%</b>	
Revised Guidelines (since 2001-02)	1. Admn. Cost	-	10%	} 5 yrs.
	2. Commtly. Organ.	-	5%	
	3. Training	-	5%	
	<b>4. Works</b>	<b>-</b>	<b>80%</b>	
Hariyali Guidelines (since 2003-04)	1. Admn. Cost	-	10%	} 5 yrs.
	2. Commtly. Devpt.&Trg.	-	5%	
	<b>3. Works</b>	<b>-</b>	<b>85%</b>	



# Stages in Implementation of Watershed Project

**PHASE - I - Awareness Building Phase**

**- Community involvement**

**PHASE - II - Institution Building Phase**

**Users Groups, SHGs, WCs,**

**WAs, VOs & GPs**

**PHASE - III - Implementation Phase**

**- Completion of planned works**

**Phase-IV- Consolidation and Withdrawal Phase**

**- Firm up institutional & sharing mechanism**



## **Part-III: Institutional arrangements**



# **Part-IV: Implementation, NRM,PE,EP**



## *Participatory Net Planning*

# Contour Bunding





**THANK YOU**

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# *CONTINUOUS CONTOUR TRENCHES*



# *CONTINUOUS CONTOUR TRENCHES*





# ***GABION STRUCTURE***



# CHECK DAM



# *FARM POND*



# *PERCOLATION TANK*



# *AFFORESTATION PROGRAMME*



# Silvi Pasture



# HORTICULTURE- MANGO PLANTATION.



3rd year old

# Sericulture





# *Productivity in Watershed Cycle*

- PHASE - I**      -    **Awareness Building Phase**
  - **Community involvement**
  - **Production issues**
- PHASE - II**      -    **Institution Building Phase**
  - **Users Groups, SHGs, WCs,**
  - **Para-Workers**
- PHASE - III -**    **Implementation Phase**
  - **Completion of planned works**
  - **Production plan**



**Grass cut and taken by  
villagers for fodder and thatching**



**Nursery Raising**

***Mango Plantation (Dist) 2006-07***

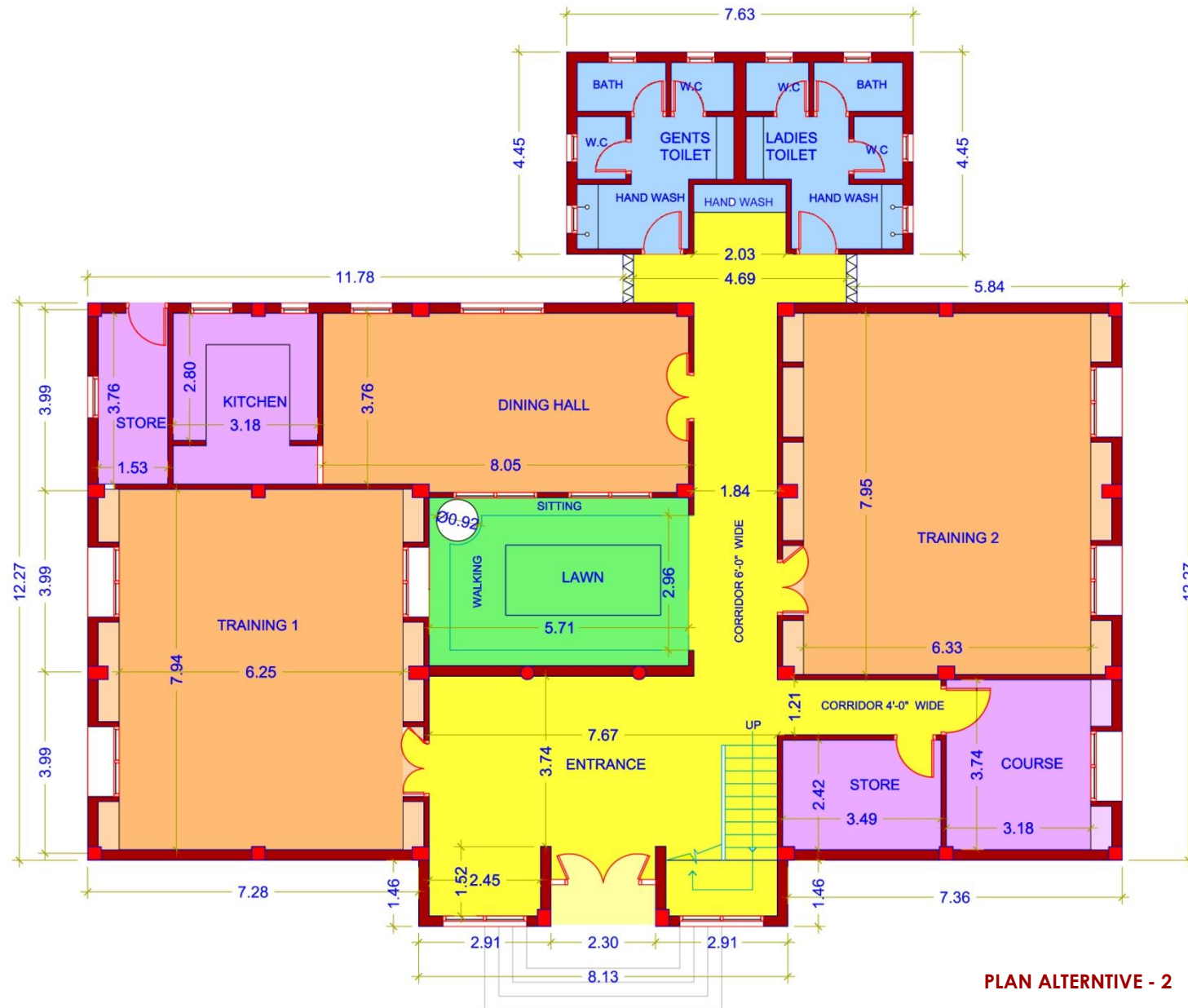




# **Part-V: Capacity Development**

# *Inputs from APRLP*

- **Concept of DCBC in each district**
- **Addressing institutional issues of CB**
- **Linking CB to Project planning**



**AREA'S**

ENTRANCE	408.00 sqft.
TRAINING HALL 1	510.00 sqft.
TRAINING HALL 1	76.50 sqft.
TRAINING HALL 2	510.00 sqft.
TRAINING HALL 1	76.50 sqft.
COURSE DIR.	141.00 sqft.
STORE	88.00 sqft.
CORRIDOR	239.00 sqft.
DINING HALL	306.00 sqft.
KITCHEN	120.00 sqft.
STORE	60.00 sqft.
TOILET GENTS	164.00 sqft.
TOILET LADIES	164.00 sqft.
<hr/>	
WALLS	2863.00 sqft.
<hr/>	
TOTAL BUILTUP	3245.00 sqft.

**PLAN ALTERNATIVE - 2**

**PROPOSED TRAINING CENTER FOR COMMISSIONER RURAL DEVELOPMENT**

**SITE 2 HEIGHT**  
 Architects, Engineers, Interiors, 2D Digitization  
 3D Presentation  
 Room: 318 Oneer Building 1st floor, 3/38 Kanyigula Station Road, Hyderabad, 27 A.P.  
 mobile: 9246379890 phone: 040-55352680 E-mail: ar\_subhani@yahoo.com



JOB NO.	122	DESIGNED	K.M.S
SCALE	1" = 4'	DRAWN	M.KHAJA
DRG. NO.	ACD-03	CHECKED	SUBHANI
DATE	11-6-2007		

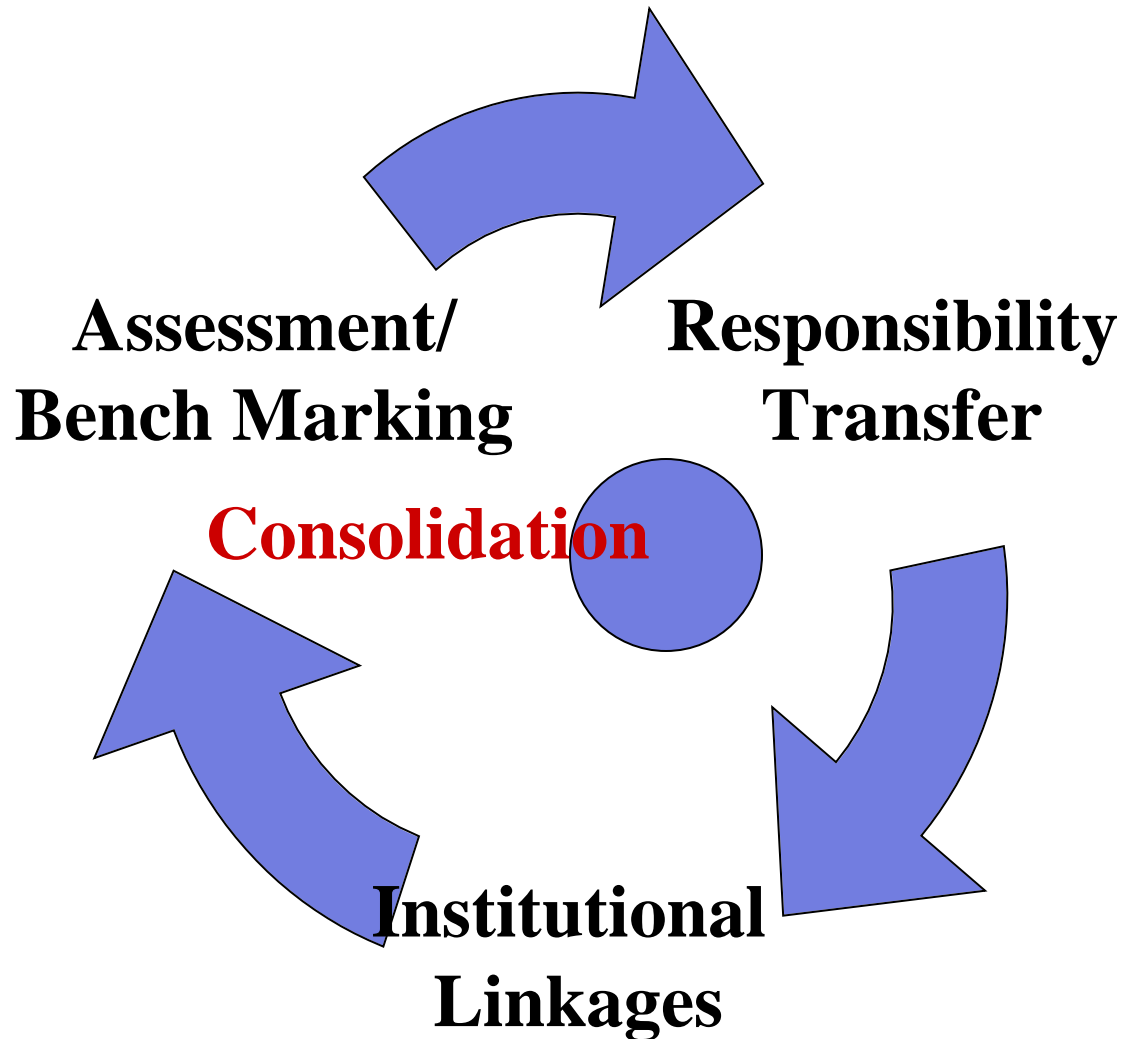
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**ELEVATION ALTERNATIVE - 3 B**



# *Consolidation Phase- Critical Aspects*

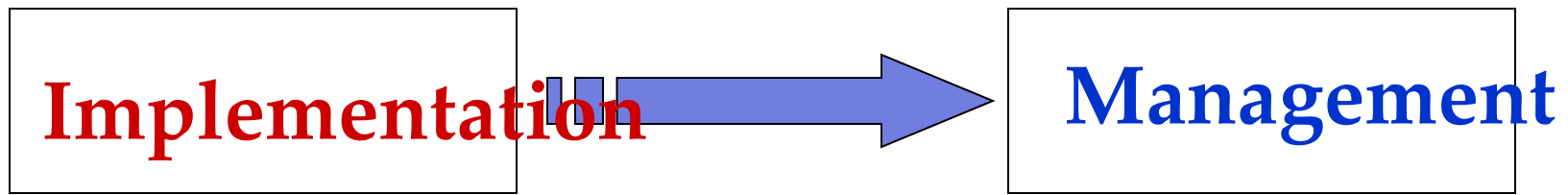


# *Assessment/Benchmarking*

- **Joint exercise with Primary stakeholders & facilitating team**
- **Take stock of works done, pending and status**
- **Kind of an audit on plan, expenditure incurred, maintenance requirement,etc**
- **Institutional Audit- WDC, SHG, UG,Para-Workers**
- **Example- APRLP Watersheds**

**Outcome- Maintenance Agenda & Institutional**

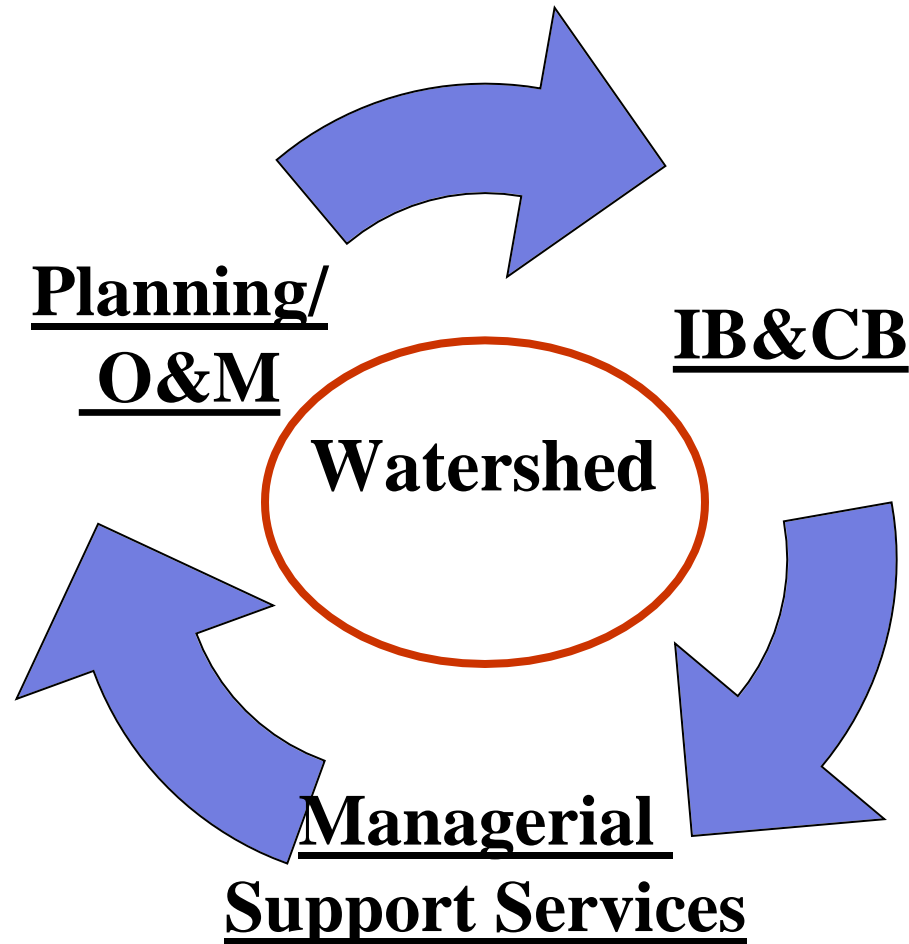
# *Required Sift in Focus*



# *Responsibility Transfer*

- **Preparing/up-dating asset inventory**
- **Asset Handing over Ceremony**
- **Preparing the Committee/groups to handle the responsibility, well in advance**
- **Informing and assuring Continued support**

# *Institutional Linkages*



Visioning necessary for each Institution

# ***Support services***

- **Preparation of Plans for O&M**
- **Use of Revolving Fund/WDF**
- **Realigning CB fund flow for Consolidation Phase**
- **Continuation of Institutions beyond project- other programmes to use this plat form**

**Moving from individual activities to scale- promoting enterprises**

<b>Item</b>	<b>Micro watershed</b>	<b>Meso-watershed</b>
<b>RRR of MI Sources</b>	<b>Stand alone activity</b>	<b>Fisherman cooperatives, marketing, VA</b>
<b>Productivity Enhancement</b>	<b>Individual &amp; Group</b>	<b>Seed village, NPM, procurement</b>
<b>Non-land based</b>	<b>IGA at individual level</b>	<b>Enterprise promotion, Processing, VA</b>

**Trigger for Sub-sectoral enterprises**



# **Part-VI: Impacts of Watershed Projects**





## **Part-VII: Issues and Challenges**