

**Success Stories in Watershed Management**

# A Story of Hope



**Rajiv Gandhi Mission For Watershed Management  
Government of Madhya Pradesh**

# A PARADIGM SHIFT



District Betul M.P.

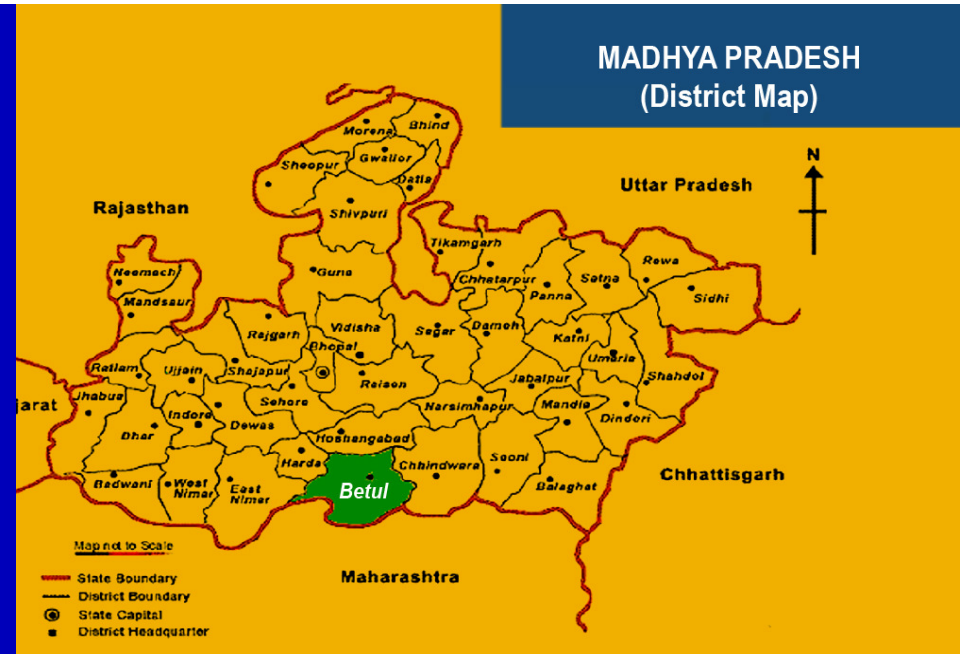


# An Approach Changed the Agricultural Scenario





# BETUL- Facts



- ❖ Predominantly tribal, (46% ST)
- ❖ High Poverty Rate (51% BPL)
- ❖ Low per capita income (Rs.10346 P.A. Govt. MP- 2003)
- ❖ Rural Population (81.43 %)
- ❖ Average Annual Rainfall (934.68 mm)
- ❖ Shifting of livelihood- Forest to Agriculture
- ❖ High Seasonal Migration



# Project at a glance

- Scheme - Haryali-I
- Project period - 2004 to 2010
- Miliwatershed - 5C5B7A
- Microwatershed - 5C5B7A-1
- Village - Parsodi
- Gram Panchayat - Milanpur
- Distance - 15 km from Dist.HQ
- Area covered - 500 ha
- Cost - 30.00 lac

# Betul (Madhya Pradesh)

www.mapsofindia.com



 **ijlksMh**

**MAHARASHTRA**



# Demography

• Population	-	800
• <b>ST</b>	-	<b>728 (91 %)</b>
• SC	-	32 (4 %)
• OBC	-	40 (5 %)
• No. of families	-	101
• Literacy	-	10.25 %

# Land use : Year 2005-06

<b>Geographic Area</b>	-	<b>396.963 ha</b>
• Net cropped area	-	<b>250.278</b>
• Irrigated area	-	<b>57.400</b>
• Rain fed area	-	<b>193.122</b>
• Double cropped area	-	<b>57.400</b>
• Waste land	-	<b>27.468</b>
• Forest Area	-	<b>114.387</b>
• Non cultivable land	-	<b>4.830</b>



# Pre project condition



# Problem statement

- Drinking Water scarcity
- Irrigation only 23%
- Productivity only 733 kg /ha
- Migration 26%
- Lack of water bodies to harvest rainwater
- Severe soil erosion
- Poverty due to no alternate livelihood sources and rain fed agriculture



## Objectives:

- To increase ground water table
- To construct water bodies for water storage
- To Change land use pattern
- To decrease soil erosion
- Development of waste land for agriculture
- To promote advanced agriculture practices for enhancement of agricultural productivity
- To develop alternative source of livelihood
- Ownership development to maintain the resources

# Methodology

- Implementation - With people participation
- Implementation concept- Ridge-to-valley treatment
- **Activities undertaken** &
  - **IEC**
  - **Community Organization and Institutional building.**
  - **Capacity building of PRI, Wc, UG's and SHG's**
  - **Technical Survey of the catchments.**
  - **Selection of structures according to site.**
  - **Priority to soil and water conservation activities.**
  - **Promotion of advance agricultural practices.**
  - **Provide support to woman and landless people for alternative livelihood activities.**



# Community mobilization



# Activities Undertaken

• Exposure visits	-	04
• Trainings	-	24
• Agriculture workshops	-	03
• Contour trenches	&	5885 RM
• Gully Plug	-	206 RM
• Percolation Tanks	-	06
• Check Dams	-	06
• Farm Ponds	-	03
• Plantation	-	20 ha
• Fodder Development	-	05 ha
• Wormi compost pit	-	13
• Improved seed Replacement	-	230 ha
• Soil testing	-	50 samples



# Ridge Treatment



# Impact on water availability

Resource	Before		After		Increase	
	no	Area ha.	no	Area ha.	no	Area ha.
Dug wells	51	10.175	95	138.7	44	128.525
Tube wells	10	47.400	15	51	5	3.600
Other water bodies	1	0.000	24	83.862	23	83.862
;ksx	62	57.575	134	273.56	72	215.987

# Result and Impact

- Ground water table has increased 2-3 m.
- land use pattern has Changed
- **216.217 ha. Additional area brought under double crop.**
- **Cropping pattern has changed from Sorghum/maize to Soybean and wheat**
- Soil conservation activities reduced Soil erosion which has increased net cropped area. (Converting fellow land in cultivable land)
- 23 ha. of fellow land has brought under agriculture
- Advanced agriculture practices has enhanced agricultural productivity by 733 kg/ha to 1400 kg/ha

# Result and Impact

- Vegetable production has developed as alternative source of livelihood.
- Use of bio-fertilizer has reduced the cost of cultivation and improved the quality of the produce.
- Rejuvenation of old tank facilitate the villagers for their domestic purpose.
- Community is maintaining the assets.
- All 26 migrating families stopped migration, started cultivation in their fellow land and also getting more employment in agriculture.
- Community Institutions have empowered.



# CheckDam-1





# CheckDam-2



# CheckDam-3





# Rejuvenation of old tank





# Comparative Statement of agriculture area in ha.

Particular	Pre project	Post project	Change
Net cropped	250.278	273.567	23.29
Double cropped	57.400	273.567	216.217
Fellow land	27.468	4.189	-23.280

# Evaluation and Evidence

- WC Records
- Nirakh-Parkh and social audit.
- District Quality monitor and mid-term and end-term evaluation reports.
- Revenue Records
- Agriculture Records has reported 30 to 35 % increase in productivity.

## Replicability and Dissemination

- Awareness about soil and water conservation has increased in the surrounding area of the project.
- The villagers themselves has constructed gully-plugs, contour bunding, in their own fields.
- Bori-Bandhan in Nalas and plantation in community land is going to be done by their own.
- Community owned the created assets and maintaining them.



# Water bodies





# Dams and plantation





# Checkdam and area under irrigation





# Sustainable asset created : Plantation





# 2<sup>nd</sup> Success Story



**Microwatershed Ghoghri**



# 81% area under irrigated wheat



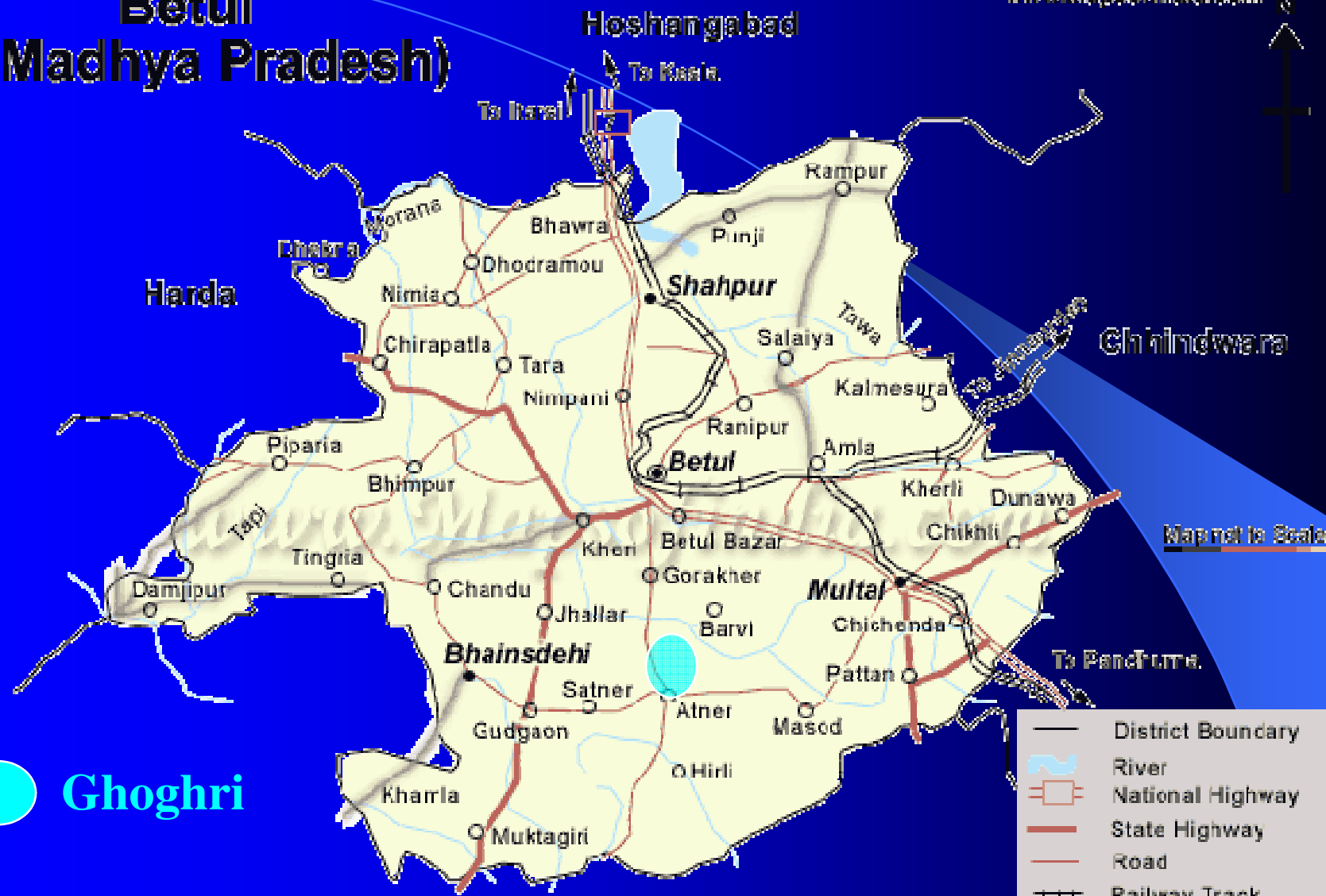
# Project at a glance

- Scheme - Haryali-III
- Project period - 2006 to 2011
- Miliwatershed - 5C5B7C
- Microwatershed - 5C5B7C-1
- Village - Ghoghri
- Gram Panchayat - Selgaon
- Distance - 27 km from Dist.HQ
- Area covered - 461.918 ha
- Cost - 27.72 lac



# Betul (Madhya Pradesh)

मध्य प्रदेश सरकार



Map not to Scale

- District Boundary
- River
- National Highway
- State Highway
- Road
- Railway Track
- Trekking Routes
- District Headquarter
- Taluk Headquarter
- Town

 **Ghoghri**

**MAHARASHTRA**

# Demography

- Population - 632
- **ST** - **584 (93 %)**
- OBC - 48 (7 %)
- No. of families - 94
- Literacy - 16.29 %

# Land use : Year 2006-07

<b>Geographic Area</b>	-	<b>416.918 ha</b>
• Net cropped area	-	<b>224.830</b>
• Irrigated area	-	<b>20.740 (9%)</b>
• Rain fed area	-	<b>204.090 (91%)</b>
• Double cropped area	-	<b>46.040</b>
• Fellow land	-	<b>84.004</b>
• Forest Area	-	<b>106.686</b>
• Non cultivable land	-	<b>47.598</b>



# Crops - year 2006&07

## ❖ Kharif - 224.830 ha

- Local paddy - 23.910 ha
- Local Jwar - 123.230 ha
- Local Maize - 28.700 ha
- Kodo-kutki - 3.100 ha
- Soybeen - 44.400 ha
- groundnut - 1.500 ha

# Crops - year 2006&07

❖ Rabi - 46.040 ha

- Irrigated wheat - 20.740
- Peas & - 0.500
- Gram - 25.300

Irrigation %	-	14 well	-	02-300 ha.
	-	1 River	-	18-440 ha.

# Problem statement

- Drinking Water scarcity - transportation for 3 month
- Irrigation only 20%
- Productivity only 800 to 900 kg /ha
- Migration 25% to 38% for 2 to 3 month
- Lack of water bodies to harvest rainwater
- Severe soil erosion
- Poverty due to no alternate livelihood sources and rain fed agriculture



## Objectives:

- To increase ground water table
- To construct water bodies for water storage
- To Change land use pattern
- To decrease soil erosion
- Development of waste land for agriculture
- To promote advanced agriculture practices for enhancement of agricultural productivity
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  - **Selection of structures according to site.**
  - **Priority to soil and water conservation activities.**
  - **Promotion of advance agricultural practices.**
  - **Provide support to woman and landless people for alternative livelihood activities.**

# Activities Undertaken

• Exposure visits	-	03
• Trainings	-	19
• Agriculture workshops	-	03
• Contour trenches	&	14075 RM
• Gully Plug	-	2338 RM
• Percolation Tanks	-	03
• Check Dams	-	01
• Farm Ponds	-	02
• Plantation	-	18 ha
• Fodder Development	-	02 ha
• Improved seed Replacement	-	220 ha
• Soil testing	-	50 samples



# Wheat Production



# Land use changed

Geographic Area

- 416.918 ha

	<u>2006-07</u>	<u>2010-11</u>
• Net cropped area	- 224.830	- 280.761
• Irrigated area	- 20.740 (9%)	- 174.740
• Rain fed area	- 204.090 (91%)	- 106.021
• Double cropped area	- 46.040	- 185.040
• Fellow land	- 84.004	- 27.073
• Forest Area	- 106.686	- 106.686
• Non cultivable land	- 47.598	- 47.598

# Impact on water availability

Resource	Before		After		Increase	
	no	Area ha.	no	Area ha.	no	Area ha.
Dug wells	14	2.3	34	59.384	20	57.084
River	1	18.44	1	38.44	0	20.000
Other water bodies	1	0	6	76.916	5	76.916
<b>;ksx</b>	<b>16</b>	<b>20.74</b>	<b>41</b>	<b>174.74</b>	<b>25</b>	<b>154.000</b>



# Change in Kharif crops in ha.

<u>❖ Crops</u>	-	<u>2006-07</u>	-	<u>2010-11</u>
❖ Local paddy	-	23.910 ha	-	6.163
• Local Jowar	-	123.230 ha	-	1.083
• Local Maize	-	28.700 ha	-	5.975
• Kodo-kutki	-	3.100 ha	-	1.100
• Soybeen	-	44.400 ha	-	219.116
• groundnut	-	1.500 ha	-	0.840
❖ Total	-	224.083 ha	-	280.761

# Change

Crops	Before	After	Change
Irrigated wheat	20.240	151.014	130.77
Pea	0.500	1.450	0.95
Lentil	0.000	0.430	0.43
Gram	25.300	30.600	5.30
Vegetables	0.000	1.580	1.58
Total	46.040	185.040	139.00

# Result and Impact

- Ground water table has increased 2-3 m.
- land use pattern has Changed
- **139 ha. Additional area brought under double crop.**
- **Cropping pattern has changed from Sorghum/maize to Soybean and wheat**
- Soil conservation activities reduced Soil erosion which has increased net cropped area. (Converting fellow land in cultivable land)
- 56.93 ha. of fellow land has brought under agriculture
- Advanced agriculture practices has enhanced agricultural productivity by 800 kg/ha to 1400 kg/ha



# Result and Impact

- Vegetable production has developed as alternative source of livelihood.
- Rejuvenation of old tank facilitate the villagers for their domestic purpose.
- Community is maintaining the assets.
- All 30 migrating families stopped migration, started cultivation in their fellow land and also getting more employment in agriculture.
- Community Institutions have empowered.

# Vegetable production





# Stopdam





# Rain water harvesting Earthen Dam -1



# Earthen Dam - 2





# Earthen Dam - 3





# Rejuvenation of water bodies



# Evaluation and Evidence

- WC Records
- Nirakh-Parkh and social audit.
- District Quality monitor and mid-term and end-term evaluation reports.
- Revenue Records
- Agriculture Records has reported 48 to 53 % increase in productivity.

## Replicability and Dissemination

- Awareness about soil and water conservation has increased in the surrounding area of the project.
- The villagers themselves has constructed gully-plugs, contour bunding, in their own fields.
- Bori-Bandhan in Nalas and plantation in community land is going to be done by their own.
- Community owned the created assets and maintaining them.



# Earthen Dam-1



# Earthen Dam-2





# Earthen Dam-3





# Promotion for Bio fertilizer





# Wheat in 151 ha







Thanks

**A Success of  
Dream**

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Government of Madhya Pradesh**