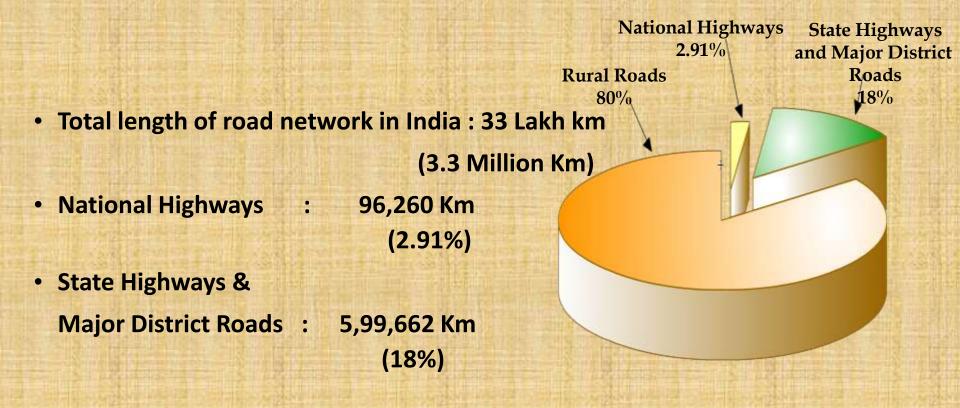
Rural Roads

Dr. I.K.Pateriya
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Status of Road Network in India



26,50,000 Km

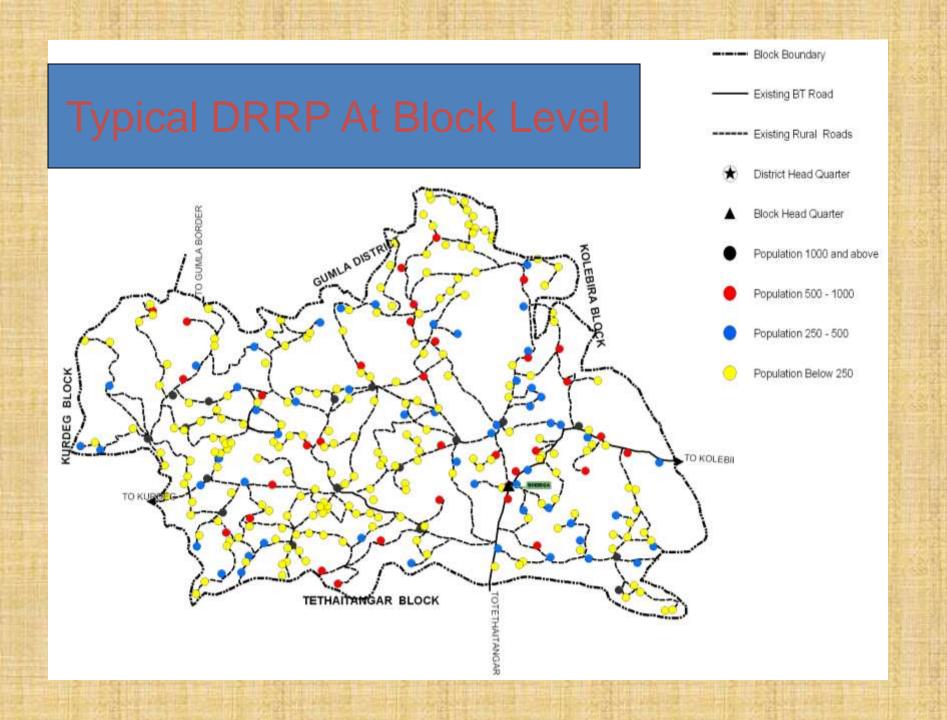
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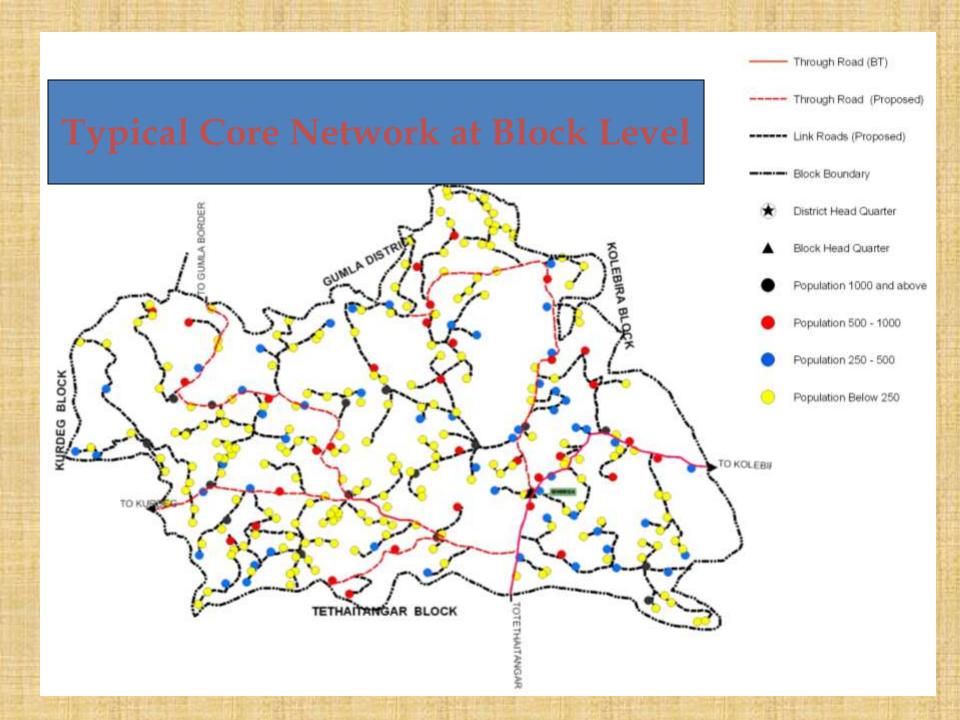
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Rural Roads

Planning of Rural Roads

- Preparation of District Rural Road Plan(Master Plan).
- ✓ Identification of Core Network.
- ✓ Comprehensive New Connectivity Priority List (CNCPL).
- ✓ Comprehensive Upgradation Priority List (CUPL)
- ✓ Fund Allocation.
- ✓ Prioritization
- ✓ Consultative process
- ✓ Proposals





Eligible Unconnected Habitations

Ligible Officonficeted Habitations								
		Net eligible unconnected habitations						
SI No	State	1000+	500- 999	250-499	Total Eligible under PMGSY upto 250	less than 250 for IAP States	Total includin g less than 250	
1	2	13	14	15	16	17	18	
1	Andharapradesh	220	391	596	1207	384	1591	
2	Arunachal Pradesh	49	114	275	438	0	438	
3	Assam	6360	5601	4065	16026	0	16026	
4	Bihar\$	12938	16335	5364	34637	859	35496	
5	Chhattisgarh	1587	4469	4135	10191	917	11108	
6	Goa	0	20	0	20	0	20	
7	Gujarat	409	1803	865	3077	0	3077	
8	Haryana	0	1	0	1	0	1	
9	Himachal Pradesh	214	896	2014	3124	0	3124	
10	Jammu & Kashmir	571	886	1047	2504	0	2504	
11	Jharkhand	1977	3723	5409	11109	2266	13375	
12	Karnataka	151	130	16	297	0	297	
13	Kerala	118	317	0	435	0	435	
14	Madhya Pradesh	5875	9989	2540	18404	25	18429	
15	Maharashtra	164	765	457	1386	130	1516	

Eligible Unconnected Habitations

		Net eligible unconnected habitations						
SI No	State	1000+	500-999	250-499	Total Eligible under PMGSY upto 250	less than 250 for IAP States	Total including less than 250	
1	2	13	14	15	16	17	18	
16	Manipur	80	211	363	654	0	654	
17	Meghalaya	9	131	562	702	0	702	
18	Mizoram	31	105	116	252	0	252	
19	Nagaland	24	40	46	110	0	110	
20	Odisha	3693	6591	5551	15835	2066	17901	
21	Punjab	94	303	0	397	0	397	
22	Rajasthan	1522	6945	7802	16269	301	16570	
23	Sikkim	16	138	212	366	0	366	
24	Tamil Nadu	555	1449	0	2004	0	2004	
25	Telangana	142	256	389	787	147	934	
26	Tripura	166	585	1165	1916	0	1916	
27	Uttar Pradesh	6817	4709	1431	12957	495	13452	
28	Uttarakhand	134	574	1525	2233	0	2233	
29	West Bengal	8558	7118	2814	18490	181	18671	
	Total	52474	74595	48759	175828	7771	183599	

Consultation with the Members of Parliament.

- ✓ Role of MP's in Preparation of DRRP and Core Network
- ✓ The CNCPL identified to connect unconnected habitations (along with names of habitations and population served and length) or the CUPL as the case may be, should be sent to the Members of Parliament, to facilitate the MPs in making their suggestions. It will be incumbent upon the District Panchayat to ensure that full consideration is given to the proposals received from the MPs.
- ✓ Lok Sabha Members to be consulted in respect of their constituencies,
- ✓ Rajya Sabha Members to be consulted in respect of the District of the State they represent for which they have been nominated as Vice- Chairman of the District Vigilance & Monitoring Committee of the Ministry of Rural Development.

Consultation with the Members of Parliament

(Cont..)

- The proposals received form the Members of Parliament by the stipulated date should be given the full consideration in the District Panchayat which should record the reason in each case of non-inclusion and the MPs should be informed of the inclusion/ non-inclusion of their proposals along with the reasons in each case in the event of non-inclusion. It would be preferable if the communication is issued form the Nodal Department at a senior level.
- The State Government should also arrange to supply to each MP, an annual list of road works taken up under the Programme for the period ending 31st March.
- The programme Implementation Units (PIU) at the district level should facilitate Members of Parliament in knowing the status of implementation of the road works in their areas in case they visit their District. The website (omms.nic.in) may also be kept updated for this purpose.

PMGSY – Salient Features

- Providing good all weather connectivity to all eligible unconnected habitations with a population of 500 persons (*Census 2001*) and above in the plain areas
- 250 persons (Census 2001) and above in Special category States (States of North East, Jammu & Kashmir, Himachal Pradesh, Uttarakhand), Desert areas (as identified in the Desert Development Programme) and 88 Selected Backward and Tribal Districts as identified by the Ministry of Home Affairs/Planning Commission.
- Upgradation of existing Through Routes.

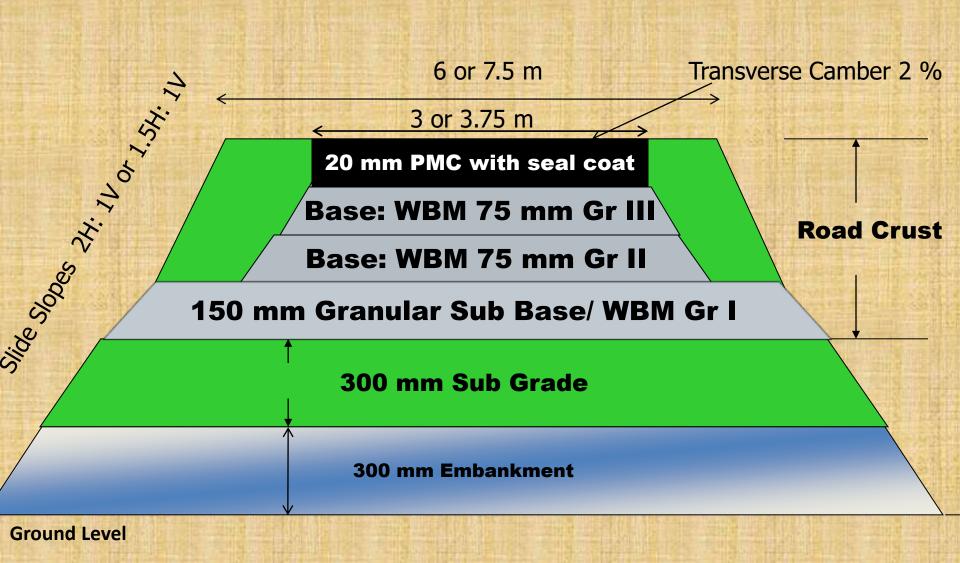




Special Features of PMGSY

- Full funding of construction cost by the Central Government (From 2000 to 2015, from 2015 onwards 60:40 & 90:10).
- National Rural Roads Development Agency (NRRDA) for Technical and Operational management support.
- Dedicated implementing apparatus at State & district level.
- Ensuring Quality Standards in construction
- Five year defect liability

Road Composition Rural Roads



Source of Funding

- Budgetary Support from Government of India.
- Fuel Cess on HSD (75 paise per litre)
- Internal Borrowings— NABARD Loans.
- Externally Aided Projects
 - Asian Development Bank (ADB)
 - World Bank

PMGSY - Current Implementation Status

A. Physical (Upto October'16)

Activity	Total Eligible	Projects Cleared	Achievement
Habitations (in Nos.)	1,83,599	1,53,779	1,19,292 of eligible (65%)
New Connectivity (km.)		3,78,453	3,07,923 of cleared (82%)
Up-gradation (km.)	3,74,844 2,24,906 UG 1,49,938 Renewal	1,86,843	1,69,025 (75 %)

PMGSY - II	Total Eligible	Projects Cleared	Achievement (upto Oct.'2016)	
Upgradation	50,000 km.	18,065 km.	7,974 Km	

B-Financial (Upto October'16)

Value of project proposals cleared :Rs. 1,99,098 Crore (Central share)

:Rs. 5,896 Crore (State share)

Funds Released :Rs. 1,42,548. 47 Crore (i/c Interest)

Expenditure :Rs. 1,48,271 Crore (Central Share i/c S/Share)

PMGSY - Current Implementation Status- Bihar

Value of proposals cleared(MoRD Share)	25,748.01
Value of proposals cleared(State Share)	340.32
Total Value cleared	26,088.33
Amount Released	18,990.73
Total No . of works Cleared	15,546
Length of road works cleared	50,233.18
Total no. of road works/bridges completed	11,636
Length of road works completed	40,045.52
% Completed Road Works	75.00
% Length Completed	79.72
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Status of works Executed by NEAs in Bihar

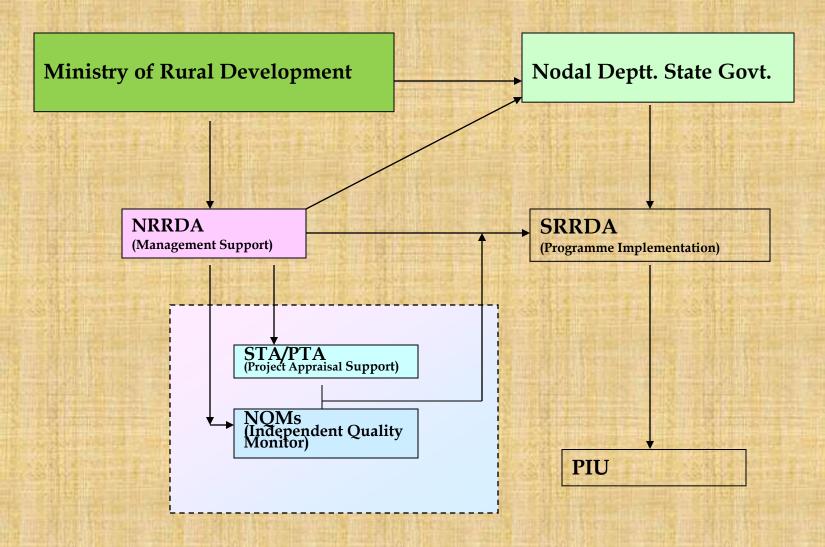
Sl.No	Name of Agency	No. of works taken up	No. of Completed works	No. of pending works	Length in Km	Expenditure till Sept, 16 (in Cr.)
1	CPWD	317	310	7	1786.15	918.85
2	NBCC	620	601	19	4108.4	1455.93
3	IRCON	461	459	2	2524.63	828.03
4	NHPC	758	752	6	3096.13	1523.55
5	NPCC	662	615	47	3467.7	1116.87
	Total	3118	3037	81	14983.01	5843.23

Management Strategy

Management strategy aimed at embedding quality awareness in all processes of implementation put in place for PMGSY.

- Appropriate Institutional Architecture
- Systematic Network Planning
- Structured Project Preparation and Selection Process
- Setting Standards and Specifications
- Standardization of Bidding Process
- Rigorous Quality Monitoring
- Need Based Training, R & D
- Web based Monitoring Mechanism.

Institutional Architecture



NRRDA: National Rural roads Development Agency, SRRDA: State Rural Road Development Agency,

STA: State Technical Agency, PTA: Principal Technical Agency, NQM: National Quality Monitor,

PIU: Programme Implementation Unit

Setting Technical Standards & Specifications for Rural Roads

Standard setting with the help of IRC:

- Rural Roads Manual prepared in October 2002. (Under revision)
- Standard Data Book and Specifications for Rural Roads published in Sept. 2004 (Rev 2014).
- Operational Manual in Feb. 2005.
- Design of flexible and rigid pavements for low volume roads published in June 2007.(Revised 2015)
- Quality Assurance Handbooks published in May 2007.
- Gravel Roads Manual published in September 2008.
- Standards for Steel Bridges published in March 2009.
- Manual on Procurement & Contract Management published in April 2012.
- Guidelines for Tree Plantation on Rural Roads 2014



MORD Specifications For Rural Roads First Revision (2014)



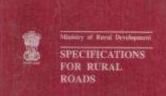
MINISTRY OF RURAL DEVELOPMENT

SPECIFICATIONS FOR RURAL ROADS

(First Revision)

Published by

Indian Roads Congress NEW DELHI 2014



Published by Indian Koods Compress Autom 2004

Provisions for Promoting Local Materials.

- Upper limit for material finer than 75 micron sieve for sub-base layer increased to 15 per cent, which was previously kept at 10 per cent.
- Variable 'Liquid Limit (LL) and Plasticity Index (PI)' depending on annual rainfall introduced for Granular Sub-Base (GSB). Previously LL was 25% (Max) and 6 (Max) throughout India. Now for low rainfall areas (annual rainfall less than 1000 mm) LL can be 40% (max) and PI can be 15 (max). For areas having rainfall more than 1000 mm rainfall, LL can be 35% (max) and PI can be 10 (max).
- For Soil-Aggregate mixes to be used in lower base course layer, CBR requirement revised to 50% minimum, and for upper base 80% minimum.
 Previously the CBR limit for base course material (both lower and upper base course layers) was 80% minimum.
- Different kinds of material specifications like Soil-Aggregate, Gravel, GSB, etc having different gradations (both open and close graded) are now available so that naturally occurring materials satisfying any of these gradations can be used suitably either in sub-base or base course layers.

New Standards and Publications Issued by NRRDA

- Report of the Expert Group on Measures for achieving economy in construction of rural roads under PMGSY
- Do it Yourself, Rural Roads Construction using Fly Ash
- Do it Yourself, Construction of Cement Stabilized sub-base/ base
- Do it Yourself, Gabion Retaining walls for rural roads
- Do it Yourself, Cell Filled
 Concrete Pavement
- Training films on Routine Maintenance, Use of Plastic waste and Use of Coir Geo Textiles



DO IT YOURSELF

Gabion Retaining Walls for Rural Roads

DO IT VOURSELF

CONSTRUCTION OF CEMENT STABILIZED SUB-BASE/BASE

DO IT YOURSELF

Cell Filled Concrete Pavement

DO IT YOURSELF
RURAL ROADS CONSTRUCTION
USING FLY ASH



A Symbol of Quality & Sustainability



Quality Assurance

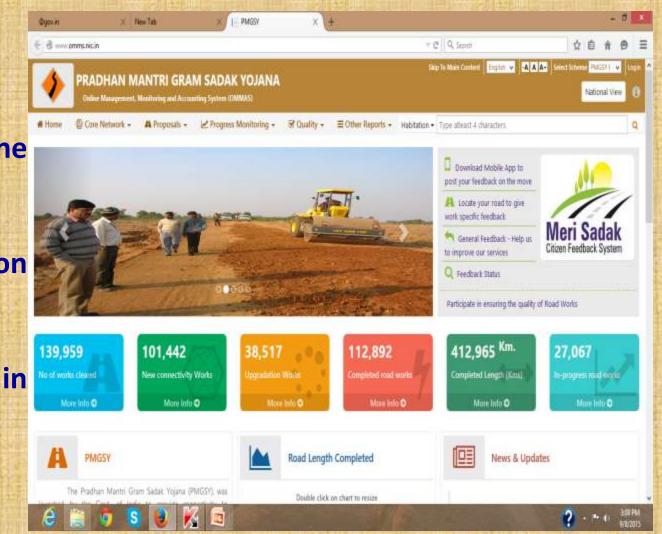
- A three tier quality management mechanism institutionalized under PMGSY.
 - First tier- Quality control at Programme Implementation Unit (PIU) level.
 Objective process control through mandatory tests on material and workmanship at the field laboratory.
 - Second tier- Regular and structured independent quality monitoring at State level.
 - Third tier- Independent National Quality Monitors deployed for inspection at random. Objective-guidance and monitoring of quality by a senior independent professional.
- For better results and sustainable quality, quality mechanism is continuously reviewed and refined.

Funding of Long Span Bridges

- Minor Bridges (of single lane specification only) may be provided, where necessary. In case of length of bridges exceeds 15 m a separate DPR will be prepared after site inspection jointly by STA and Superintending Engineer.
- In respect of all States/ districts (other than mentioned below) the funding of GoI for span of bridges is enhanced from 50 m to 75 m as per existing funding patter (60:40 between centre and the States). However, the pro rata cost beyond 75 m and agency charges, if any will be fully borne by the State Government.
- In respect of Left Wing Extremist districts (as identified by MHA) and Special Category States (8 NE States and 3 Himalayan States), the funding of GoI for Span of bridges is enhanced from 75 m to 100 m, as per existing funding pattern (90:10 between Centre and States for Special Category States and 60:40 for other States).
- Pro Rata cost beyond 100 m and agency charges, if any, will be fully borne by the State Governments.

Online Management Monitoring & Accounting System

- •A Web-based online monitoring system.
- •Embedded Decision support systems.
- Data BaseCitizen's domain.



Data Entry in OMMAS

- As soon as the DRRP is finalized, the PIU shall enter the data in the OMMAS after logging in. Unless already entered, Master Data for the district has to be entered first followed by the details of habitations (as per 2001 census) and roads connecting them. Unless this data is entered, further data entry relating to the Annual Proposals, Execution of projects and Expenditure cannot be entered, since for all these purposes, the road will have to be selected out of the DRRP (and infact the Core Network).
- Once the Core Network roads are identified in the OMMAS, the OMMAS is enabled to produce the CNCPL for the district and also, once the pavement Condition Index has been entered, the CUPL.

Preparation of Project Proposals and their clearance

- Proposals to be approved by District Panchayat.
- ▲ Consultative Process and Recommendation of Member of Parliament.
- Clearance by SLSC
- Preparation of Detailed Project Reports (DPRs)
- Scrutiny by STA and then at NRRDA
- Clearance by Empowered Committee.

Execution of Works

- ★ E-Tendering
- ★ Standard Bidding Document.

- **★** Administrative Expenses
- ★ Quality Control & Supervision.
- **★** Monitoring

Procedure for Release of Funds to the States

- o Single Account with Internet connectivity.
- o All PIUs operate on the same account.
- o Payments to authorized payees only
- o Limits set by Empowered Officer.
- o OMMS will support Accounting System.
- o Separate accounts for programme, maintenance and administrative expenses.

Audit

- ✓ SRRDA will get the accounts audited by Chartered Accountant (CA) from the panel approved by C&AG within 6 months of closing of financial year.
- ✓ In addition they would be subject to audit by C&AG of India.
- ✓ The State level agency and PIU must provide all relevant information to district level Vigilance and Monitoring Committees.

Adoption of Standard Bidding Document

- Based on study of existing bidding in States and taking national and international best practices into account a Standard Bidding Process was developed and prescribed for PMGSY.
- Looking to the State Specific variations in the Condition, States allowed to make State Specific provisions with respect to 36 action points without disturbing overall framework and format of SBD.
- Funds for Construction are Provided by PMGSY but the States provide Funds for Routine Maintenance.
- > All States adopted the Document in 2004.
- > E-procurement operationalised in all the States.

The Process of Starting Work

- ➤ Sanctions and Approvals: As soon as the works are cleared by the Ministry of Rural Development, the Administrative Approval (A.A.) is to be obtained in the States from the Competent Authority. After this, the Technical Sanction (T.S.) is also obtained from the Competent Authority.
- ➤ **Tendering:** All the works under the Programme are tendered on the basis of SBD.

Standard Bidding Document- Features

Two Envelope System of Tendering:

- ➤ Technical Bid: Qualification Information and other details regarding Financial Capability, Equipments, Manpower etc.
- Financial Bid: In case of percentage rate Tender, the bidder will quote rates in relation to the Schedule of Rates and in case of Item Rate Tender, the bidder will quote rates of the item shown in the bill of quantities.

Standard Bidding Document -Time of Completion

> Time of Completion:

- √ 12 months for works in plain and rolling terrain.
- √ 18 months for hill roads in hilly States.
- √ 18-24 months for completion of cross drainage works exceeding 25 m length.
- ✓ For LWE Districts, time of completion may be up to 18 months on case to case basis.
- ➤ Time Control: Work Programme has to be Prepared. Effective Checks for Adherence to Work Plan. Milestones and Liquidated Damages.
 - ✓ Mile Stones:
 - ¹/₈ Work in ¼ Time.
 - ³/₈ Work in ½ Time.
 - ¾ Work in ¾ Time.
 - ✓ Liquidated Damage: 1% of initial Contract Price per week subject to a Max. of 10 %.

Standard Bidding Document – Other Features

- ➤ Performance: 2.5% Performance Security before Agreement. Balance 2.5% Performance Security and 5% Security Retention from Bills.
- Quality Control: Mandatory Tests in Field Laboratory, Deployment of Technical Personnel and Key Equipments.
- ➤ Maintenance Mechanism: Roads to be maintained by the Construction Contractor for 5 years after construction. The routine maintenance to be paid separately.
- Sub-contracting: 20% of work can be sub-contracted. For packages5 Cr, subcontracting of routine maintenance allowed.

Standard Bidding Document – Other Features

- Capacity Building of Contractors: Mobilizations Advance 5%, Equipment Advance 10%.
- Defect Liability: Defect liability is for 5 Years with paid routine maintenance.
- Disputes: At first instance reference to Competent Authority within Department. Appeal to Standing Empowered Committee.
- **Essence:** Time and Quality is the essence of the Contract.

Maintenance of Rural Roads

- In case of link routes (new construction) the component shall comprise of 5 year routine maintenance.
- → In case of associated rural Through Routes not requiring upgradation, the component shall include 5year routine maintenance including one renewal as per cycle.
- ★ In case of Through Routes taken up for upgradation, 5 year routine maintenance and a renewal at the end of the period followed by 5 years routine maintenance.
- → Rural Roads Maintenance Policy 15 States have already formulated.

Rural Road Safety

- SQC and Head of PIU shall be tasked by the State Government to coordinate Road Safety Mechanism and Programmes.
- They will be Members of State Road Safety Council and District Road Safety Committee respectively created as per provisions of Section 215 of MV Act, 1988.
- Awareness to be created through Pamphlets, Audio Visual Aids and Interactive Programmes.

PMGSY-II - Features

- Union Cabinet approved PMGSY-II on 1st May, 2013.
- Aims at consolidation of rural road network, to leverage the gains of PMGSY-I, through upgradation of 'Through Routes' and 'Major Link Routes'.
- Guidelines published and posted on the website.
- All States/ UTs are eligible to Participate in PMGSY- II once they substantially award PMGSY works.
- DRRP is the basis of PMGSY II and not Core Network.
- Centre- State Sharing pattern: 60:40 [Special Areas-90:10]

PMGSY-II - Features - Cont..

• 12th Five Year Plan period target- 50,000 Km length under PMGSY-II.

- State-wise allocation made based on the pro-rata basis of length in PMGSY [20-25% of PMGSY Up-gradation Targets].
- 8 States- Andhra Pradesh, Telangana, Gujarat, Haryana, Karnataka, Maharashtra Punjab and Uttar Pradesh sanctioned PMGSY II roads.

Objectives of DPR

> To present the details of Investigations, Design with choice of Technology, Assessment of accurate quantities and Cost Estimation along with necessary drawings to enable the execution of the Project.

Contents of the DPR

Volume I: Report and Estimate in A4 Size

- ✓ Introduction
- ✓ Alignment
- ✓ Land Acquisition
- ✓ Geometric Design Standards
- ✓ Topographical Surveys
- ✓ Soil and Material Survey
- ✓ Traffic Survey
- ✓ Pavement Design and Surfacing
- ✓ Hydrological Survey

Contd.,

Contd.

- ✓ Design of CD works and integration of Drainage System
- ✓ Protective Works
- ✓ Specifications
- Environmental Issues and Mitigation measures
- ✓ Analysis of Rates
- ✓ Estimate
- ✓ Construction Programme
- ✓ Undertaking for future Maintenance

Contents of the DPR

Volume II: Drawings in A3 size

- √ Key Map
- ✓ Block Road Map
- ✓ Index Map
- ✓ Plan and Longitudinal Sections
- Typical cross Sections
- ✓ Detailed Cross Sections
- Drawings of CD Structures
- ✓ Drawings of Protective Works
- ✓ Miscellaneous Drawings

Important Factors for Scrutiny

- Selection of Alignment.
- Land Availability.
- Traffic Volume.
- Soil Characteristics.
- Design and Specifications.
- · CD works.
- Drawings.

DPR Scrutiny Process

Stage 1 - Executive Engineer.

Stage 2 - Superintending Engineer

Stage 3 - State Technical Agency (STA)

Stage 4 - Principal Technical Agency (PTA) (Random Check)

Stage 5 - Random Check at NRRDA

Transparency and Citizen Monitoring

Every work is required to display

- Citizen Information Board –
 Quantity of material in each layer
- Work information Board displaying length, cost, date of start and completion, name of PIU







Machinery & Equipments in PMGSY





Need for Technology Initiatives

- To promote cost-effective and fast construction technologies.
- To mitigate the problem of depleting Natural Resources
- To mainstream the technologies already developed through R & D in the past.
- To undertake further research and technology initiatives duly taking into account the environment, terrain, accessibility and other constraints.
- For Protection of Environment.
- Use of locally available marginal materials like Marble Slurry,
 Gravel, Construction Waste, Overburden of Mines etc.
 - Industrial wastes such as Fly Ash, Pond Ash, Slag etc
 - New materials accredited by IRC and
- Environment friendly new technologies., e.g. Cold Mix Technology, Jute/ Coir Geo-textiles, Waste Plastic in Surfacing.

Issues in Use of New Technologies

- 1. Fear of failure of New Technology
- 2. Apprehensions among the officers about rate analysis.
- 3. In-adequate technical know-how about various technologies
- Fear of strict Quality Control and Additional Work burden of reporting performance evaluation
- 5. In-adequate information about life cycle cost analysis
- 6. In-adequate knowledge about design requirements for different technologies.

Mainstreaming of Existing Technologies

Tech. with IRC Specifications

- Lime stabilization
- Cement stabilization
- Bitumen stabilization
- Mechanical stabilization
- Use of Fly Ash/Pond Ash
- Lime fly ash stabilized Bases
- Use of fly ash in cement for concrete structures.
- Roller Compacted Concrete Pavements
- Cold Mix Technology
- Waste Plastic Utilization
- Bio Engineering Measures

Tech. with No IRC Specs

- Locally available /Marginal materials, Brick aggre.etc.
- Blast furnace Slag/ Steel Slag /Zinc Slag
- Jute / Coir Geo-textiles
- Rice husk, Baggase
- Accredited materials like
 RBI 81, Terrazyme,
 Powercem, Zycosil
- Quarry Waste Materials
- Slope Stabilization, Bamboo Piling etc.

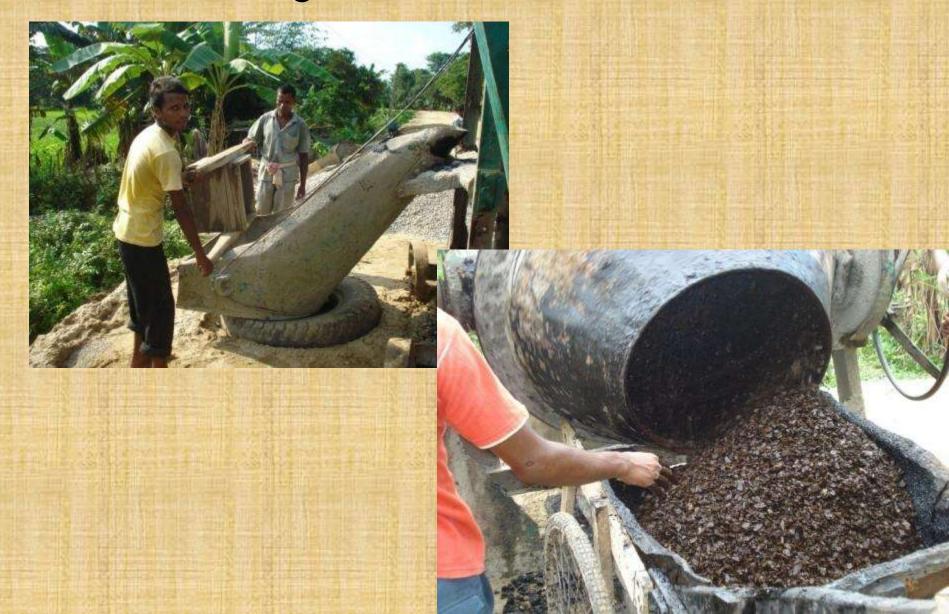




Mainstreaming of existing technologies (Cont.)

- Cold mix technology using cationic emulsions-
- For use in the areas of long spells of rainy season and cold climates.
- Environment friendly technology and is not equipment intensive.
- Cost-effective and would enable achievement of larger lengths due to availability of longer working season.
- The use of this technology may also be explored in LWE/IAP districts
- New IRC Code being released including Bituminous Macadam and SDBC etc has just been released.

Mixing with Concrete Mixer



Cold Mix Plant at Pug Mill 150 tph Plant









Mix with slow setting characteristics





Mainstreaming of Existing Technologies (Cont.)

- Material Mapping on GIS platform-
 - CRRI as Nodal Agency.
 - STAs/PTAs/NITS/ Academic Institutions to be involved.
- Existing Technologies/Locally Available Materials in DPRs-
 - 15 percent Length of Annual Proposals.
 - > STAs/PTAs to identify project Stretches
 - Consultants for DPRs to be empanelled by SRRDA
 - > RRMs to cover review on this front also.

Measures Proposed

- One Nodal officer at State level for New Technologies
- Pre DPR meetings to identify the Technology and roads
- Special care would be required by the PIUs / Consultants in preparation of DPRs and by STAs/ PTAs in scrutiny of DPRs using such materials/technologies.
- The traffic survey for such roads is to be carried out with greater reliability and design traffic to be projected.
- The State governments should also ensure that the traffic plying on such roads after construction is not higher than the design traffic.
- DPRs of New Materials / technology to be prepared after site inspection jointly by the DPR consultant, officer of Programme Implementation Unit and the State Technical Agency.
- Special care would be required by the contractors for execution of works with such materials/technologies

Measures Proposed

- Only experienced firms with competence shall be allowed to offer the bids.
- ➤ No Sub Contracting for such works.
- Stage passing shall be mandatory,
- ➤ Defects Liability Period shall be only six months after issue of Take Over Certificate. Thereafter, neither the Employer nor the Contractor will be held responsible. The supervision engineer / project implementation unit and the STA concerned would also not be held responsible for any defect appearing after the said period.

Measures Proposed

- Necessary modifications in Bidding Documents and Procurement process to be made taking care of special equipments and technical personnel.
- During execution of works, documentation of procedures observed, quality control tests conducted and operation of equipments, etc. through videography of various activities.
- Concept of Durability and Life Cycle Cost analysis including social and environmental costs should always be carried out.

Training and Awareness

- Capacity building of various stakeholders.
- CRRI to be the nodal agency and the existing training centres and the PTAs/STAs to play vital role..
- Visits of PIUs/SRRDAs/PTAs/STAs should be arranged to good practice projects both within India and abroad, to create awareness and raising their benchmark.
- Contractor's organizations may be involved in arranging regular colloquium in various regions of the country, for demonstration of such technologies involving STAs / PTAs/ SRRDAs.

Additional Information Required in DPRs

- Introduction of Technology
- Choice of Technology and Advantage of Technology in Particular Case.
- Design of Pavement Component Using Technology.
- Rate Analysis of Items
- Cost comparison of corresponding layers.
- Results of Trials if carried out in advance or Proposed Methodology of Trial tests.
- Certification by the Technical Agency.

Mapping of Local Materials

Darbhanga District

- In-Situ (Local) Soil Akbarpur Village (Rampur Tola) and Pakahi Village
- Brickbats Sahora Village
- Bagmati River Sand (Collected near Ashok Paper Mills)
- Stone metal which is being presently used in road works (Sourced from Mirza Chowki, Bhagalpur-Jharkhand Border) Collection point Anandpur Village

Mapping of Local Materials- Cont...

Bhagalpur District

- In-Situ (Local) Soil Jagarnathpur Village
- Stone quarry waste rock+ soil mix, Local moorum type soil from stone quarry and Stone metal from the quarry (Quarry presently not in operation) – Shahkund
- Fly ash and Pond ash from Kahalgaon Thermal Power Station under NTPC

CRRI conclusions on Local Materials.

- Using available local materials in road works would be a 'win-win' situation for all concerned
- To promote usage of locally available / marginal materials, a nationwide data-base of geographical availability (location defined by coordinates) and physical and engineering properties of such materials.
- Strength properties of locally available / marginal materials can be improved in many cases by adoption of modified proctor compaction.
- Stabilisation techniques mechanical as well as chemical admixture stabilisation can be judiciously adopted to enhance strength properties of locally available / marginal materials.
- Producers of locally available / marginal materials (like mine / quarry owners) need to be educated.
- Characterise such materials from environmental safety / acceptability point also (heavy metal content, leachate analysis, etc).
- Special training programmes would have to be arranged for engineers to educate them about use of locally available / marginal materials, etc.

CHINNAKUMARAPALAYAM TO KONDAMADAI ESSAL THITU



SUB GRADE



BASE FORMATION



SUB BASE



PLACING OF RBI 81

CHINNAKUMARAPALAYAM TO KONDAMADAI ESSAL THITU (Cont..)



INSPECTION BY STA OF BASE LAYER



MIXING OF RBI 81



SPREADING OF RBI 81



COMPACTING @ OMC

CHINNAKUMARAPALAYAM TO KONDAMADAI ESSAL THITU (Cont..)



INSPECTION BY STA



BITUMINOUS LAYER



BITUMINOUS LAYER



COMPLETED ROAD







	Earlier Provision	Revised Provision	Reasons
B			
100	Provision for quoting	The bidder is now required	Past experience have
	the rates for	to quote for construction	demonstrated that, in many
Ū	construction &	J	
	maintenance	maintenance for five year	
	separately by bidders.		amount for maintenance. In
		declared by the road	•
Š		agency.	even zero which obviously
			could not happens as the road,
			however good quality,
E C			requires routine and annual
			maintenance.
Ū			

Earlier Provision	Revised Provision	Reasons
The requirement for financial turnover was 75% of the package size in case the amount put to bid more than 2 Cr. and less then 10 Cr.	The financial turnover requirement of 75% has been made for all packages more than 2 Cr. size.	Experience of States have demonstrated that with increase in capacity of contracting industry putting a cap on 10 Cr. size for PMGSY was not very realistic. Particularly under PMGSY-II wherein participation of bigger contractors are envisaged for larger package size.

Earlier Provision	Revised Provision	Reasons
	The word "Scanned" has been attached in all these sections.	Electronic Bidding had been made mandatory under PMGSY and therefore, the requirement for receiving these three instruments in physical form has been done away in electronic bidding. Instances have come to the notice of NRRDA wherein, in some States, insistence on the receipt of these document in physical form compromised the secrecy of bidding process.

Earlier Provision	Revised Provision	Reasons
within the scope of the	made wherein the variation in quantities would not constitute a variation for payment	had two distinct benefits: (i) Incentivise the State to prepare realistic DPRs based on field

Earlier Provision	Revised Provision	Reasons
In case of variation, the decision of the engineer on the rates determined was final and	The engineer shall recommend the rates for variation (variation caused due to the	It was felt that both the power of approving the variation and also time extension should be done at head quarter level based on the recommendation of the Engineer.

Earlier Provision	Revised Provision	Reasons
The payment to the	The payment to the	Paying maintenance bill monthly
contractor for	contractor has been	based on the certificate of the
was done quarterly	done on monthly basis.	engineer is the better management practice as demonstrated in some of
based on the monthly bill		the States like Madhya Pradesh and makes the PIU / contractor more
received.		answerable towards maintaining
		the road to the serviceable standards.

Earlier Provision	Revised Provision	Reasons
	amount required for this work shall be recovered from the performance security available with the employer along with	provisions of the SBD do not clearly mandate the employer to impose any penalty on the contractor for not carrying out routine maintenance. The situation was particular difficult when the contractor had quoted very less amount for five year routine

Earlier Provision	Revised Provision	Reasons
mobilization and equipment advance are paid to the contractor against the unconditional bank guarantee for	equipment advance are	recovered from the contractor were not sufficient to compensate the cost escalation

Earlier Provision	Revised Provision	Reasons
	Default of the contractors to pay EPF / ESI to its laborers would constitute the Fundamental breach of contract. Discrimination in payment of wages on the basis of gender of the engaged labour would also constitute as fundamental breach. Engagement of child labour in violation of prevailing laws would also constitute as fundamental breach of contract.	The experience of some of the States under PMGSY have demonstrated that the employer was held liable for non compliance of statutory provisions by the contractor on the referred subject. Therefore, such strict provisions were required to be made under the contract.

