आज़ादी का अमृत महोत्सव

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वसुधैव कुटुम्बकम्
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सत्यमेव जयते

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National Rural Infrastructure Development Agency
Ministry of Rural Development
Government of India

CONTENTS

Glossary of Abbreviations

ADB	Asian Development Bank
AITD	Asian Institute of Transport Development
AOC	Award of Contract
AAP	Annual Action Plan
ATR	Action Taken Report
BADP	Border Area Development Programme
CBR	California Bearing Ratio
CDAC	Centre for Development of Advance Computing
CGARD	Centre for Geo-Informatic Application in Rural Development
CPGRAMS	Centralized Public Grievance Redressal and Monitoring System
CPP	Central Public Procurement
CRRI	Central Road Research Institute
CSS	Centrally Sponsored Scheme
C&AG	Comptroller & Auditor General of India
CUCPL	Comprehensive Upgradation cum Consolidation Priority List
DEA	Department of Economic Affairs
DG	Director General
DPIU	District Project Implementation Unit
DPR	Detailed Project Report
DRRP	District Rural Roads Plan
DSC	Digital Signature Certificate
eMARG	Electronic Maintenance of Rural Roads
ESCI	Engineering Staff College of India
F&A	Finance and Administration
FINNOC	Finnish Overseas Consultant Limited
FOSS	Free and Open Source Software
GePNIC	Government eProcurement System of NIC
GIS	Geographic information System
GrAMs	Gramin Agricultural Markets
GRASS	Geographic Resource Analysis Support System
HQ	Headquarters
IAHE	Institute of Highway Engineers

IAP	Integrated Action Plan
ICT PMU	Information Communication Technology Project Management Unit
IIT	Indian Institute of Technology
IRC	Indian Roads Congress
ISRO	Indian Space Research Organization
JS	Joint Secretary
LSBs	Long Span Bridges
LWE	Left Wing Extremism
MDR	Major District Road
MFF	Multi-Tranche Financing Facility
MIS	Management Information System
MODS	Multi Option Deposit Scheme
MoRD	Ministry of Rural Development
MoU	Memorandum of Understanding.
NABARD	National Bank for Agriculture and Rural Development
NH	National Highway
NICMAR	National Institute of Construction Management and Research
NIRD&PR	National Institute of Rural Development and Panchayati Raj
NIT	National Institute of Technology
NQM	National Quality Monitor
NRIDA	National Rural Infrastructure Development Agency
NRRDA	National Rural Roads Development Agency
NRSC	National Remote Sensing Centre
ODR	Other District Road
OGPC	Open Graded Premix Carpet
OMMAS	On-line Management, Monitoring and Accounting System
P-I	Project- I
P-II	Project-II
P-III	Project-III
PCI	Pavement Condition Index
PEC	Performance Evaluation Committee
PFMS	Public Financial Management System
PIU	Project Implementation Unit

PMGSY	Pradhan Mantri Gram Sadak Yojana
PTAs	Principal Technical Agencies
QGIS	Quantum Geographic Information System
R&D	Research & Development
RC	Rural Connectivity
RCIP	Rural Connectivity Investment Programme
RD	Rural Development
RH	Rural Housing
RRM	Regional Review Meeting
RRMP	Rural Roads Maintenance Policy
RRNMU	Rural Road Network Management Unit
RRP	Rural Road Project
RRP-II	Rural Road Project-II
SH	State Highway
SQC	State Quality Coordinator
SQM	State Quality Monitor
SRCIP	Second Rural Connectivity Investment Programme
SRI	Satisfactory Requiring Improvement
SRRDA	State Rural Road Development Agency
STAs	State Technical Agencies
TIA	Tender Inviting Authorities
UNDP	United Nation Development Programme
UTs	Union Territories
US$	United State Dollar
VR	Village Road
WMM	Wet Mix Macadam

1. Introduction

1.1 Roads are arteries of the nation and provide the much needed infrastructural push for social and economic growth. The absence of all-weather road connectivity used to be a serious problem in India, particularly in rural areas. Poor road infrastructure affects economic growth, agricultural productivity and employment in rural areas, and has a strong link to poverty. The Government of India has addressed this problem through implementation of a nationwide rural road investment program- the Prime Minister's Rural Roads program PMGSY- aimed at providing all-weather road connectivity to eligible habitations in India's rural areas.

1.2 Government of India, as the part of poverty reduction strategy, launched the Pradhan Mantri Gram Sadak Yojana (PMGSY-I) on 25th December 2000 as a Centrally Sponsored Scheme to assist the states through "Rural Roads".

The primary objective of the PMGSY-I was to provide connectivity, by way of an all-weather road with necessary culverts and cross-drainage structures, which is operable throughout the year, to eligible unconnected habitations in rural areas. Habitations with a population of 500+ in plain areas and 250+ in North-Eastern and Himalayan states, Desert areas, Tribal (Schedule V) areas and selected tribal and backward districts as identified by the Ministry of Home Affairs/ Planning Commission as per Census, 2001 were to be covered under the scheme, so that these habitations can have access to basic health services, education facilities and markets for their produce. In the critical Left Wing Extremism (LWE) affected blocks (as identified by MHA), additional relaxation has been given to connect habitations with population of 100+ (Census 2001). The Scheme had also an element of upgradation (to prescribed standards) of existing rural roads in districts where all the eligible habitations of the designated population size had been saturated with all-weather road connectivity, though this objective was not central to the scheme (PMGSY- I).

Against 1,78,184 eligible habitations of 250+ and 500+ population size identified for coverage under the scheme, 16,086 habitations have been provided connectivity by the States out of their own resources and 4,778 habitations have either been dropped or have not been found feasible. Out of the balance 1,57,319 habitations sanctioned for providing connectivity under the PMGSY, 1,55,595 have already been covered till 31st March 2022. Under 100-249 population category (LWE areas), 6,260 habitations have been sanctioned for providing all-weather road connectivity, out of which 5,909 habitations have been saturated till 31st March 2022. A total of 6,45,395 Km road length has been sanctioned under new connectivity and upgradation components under PMGSY-I, out of which 6,16,031 Km road length has been completed till 31st March 2022.

As the programme unfolded, a need was felt for consolidation of the existing Rural Road Network to improve its efficiency not only as a provider of transportation services, but also as a vehicle of social and economic development. Accordingly, in the year 2013, PMGSY-II was launched which envisaged consolidation of the existing Rural Road Network to improve its overall efficiency as a provider of transportation services for people, goods and services. A total of 50,000 km road length has been targeted for upgradation under

PMGSY-II. A total of 49,872 Km road length has been sanctioned under the Scheme and 47,169 Km completed as on 31st March 2022.

Subsequently, in 2016, Road Connectivity Project for Left Wing Extremism Affected Areas (RCPLWEA) was launched as a separate vertical under PMGSY with an aim to improve the road connectivity in 44 worst affected LWE districts and some adjoining districts in 9 States, viz. Andhra Pradesh, Bihar, Chhattisgarh, Jharkhand, Madhya Pradesh, Maharashtra, Odisha, Telangana and Uttar Pradesh for construction/ upgradation of strategically important roads.

Since inception of the scheme till 31st March 2022, a total of 10,895 km road length has been sanctioned, out of which 5,888 km road length has been completed.

In the year 2019, Government launched PMGSY-III for consolidation of 1,25,000 Km Through Routes and Major Rural Links connecting habitations, inter-alia, to Gramin Agricultural Markets, Higher Secondary Schools and Hospitals. The implementation period of the Scheme is upto March 2025. A total of 81,648 Km road length has already been sanctioned to 17 States and 35,633 Km road length completed till 31st March 2022.

1.3 The National Rural Roads Development Agency (NRRDA) was registered as a society on 14th January, 2002 under the Societies Registration Act – XXI of 1860. The basic objective of NRRDA was to extend support to the programme implementation through advice on technical specifications, project appraisal, quality monitoring and management of monitoring systems. The Agency is a compact, professional and multi-disciplinary body for providing technical and management support for effective implementation of the programme. Consequent to inclusion of the housing component in the activities of NRRDA, it has been renamed as National Rural Infrastructure Development Agency (NRIDA) w.e.f. 4th May 2017.

2. Objectives of NRIDA

Rural Roads

a. To discuss with different Technical Agencies and arrive at appropriate Designs and Specifications of Rural Roads and, thereafter, to assist the Ministry of Rural Development in prescribing the Designs and Specifications of Rural Roads, including Bridges and Culverts.

b. To determine the tasks to be performed by the Principal Technical Agencies and State Technical Agencies.

c. To appoint reputed Technical Institutions as Principal Technical Agencies and State Technical Agencies to perform the tasks to be entrusted to them.

d. To render assistance to States or Union Territories in preparing District Rural Roads Plans.

e. To scrutinize or arrange to scrutinize the proposals received from States and Union Territories for consideration by the Ministry of Rural Development.

f. To oversee and inspect or arrange to inspect through Independent Monitors, the execution of the road works cleared by the Ministry and being implemented by States or Union Territories through their Executing Agencies.

g. To appoint serving or retired Engineers, Academicians, Administrators and other Agencies, with experience in Rural Roads, as Independent Monitors to ensure proper execution of road works by the State Agencies.

h. To monitor the progress of the road works with particular reference to time frame for completion, Technical Specifications, Project Appraisal and Quality Control methods.

i. To set up an "On-line Management Monitoring and Accounting System",

j. incorporating both intranet and internet-based system, for obtaining updated information to facilitate a ready viewing and screening of data. To send periodic reports to the Ministry of Rural Development on the progress of implementation of road works by the States or Union Territories.

k. To Monitor the planning for and plantation of fruit bearing and other suitable trees on both sides of the rural roads undertaken by the States or Union Territories, under the Pradhan Mantri Gram Sadak Yojana.

l. To Monitor the expenditure incurred by the States or Union Territories in implementation of the Pradhan Mantri Gram Sadak Yojana, with reference to the funds released by Ministry of Rural Development through expenditure reports obtained from the States or Union Territories and through On-line Management Monitoring and Accounting System.

m. To take up research activities relating to Rural Roads, including execution of Pilot Projects.

n. To study and evaluate different Technologies in respect of Rural Roads and to take up pilot projects involving different technologies.

o. To enter into collaboration with Institutions, Agencies or Bodies of repute, both national and international, in respect of Rural Roads.

p. To arrange suitable Training Programmes for officers of the Ministry as well as the State Governments or Union Territories concerned with the implementation of the Rural Roads Programme in reputed institutions.

q. To advise on measures to improve the Quality and Cost norms of the Rural Roads.

r. To publish books, literature, take up or arrange for production of publicity material, print, audio or audio-visual in respect of the Pradhan Mantri Gram Sadak Yojana.

s. To organize and sponsor workshops and seminars in respect of Rural Roads.

t. To purchase, lease and hire equipment or machinery required in the construction of Rural Roads.

u. To take up such activities as necessary to further the objective of the Programme and assist the Ministry of Rural Development in Planning and Implementation of the

Pradhan Mantri Gram Sadak Yojana and such other related Programmes as may be taken up.

Rural Housing

a. To act as Special purpose Vehicle for receiving financial assistance from NABARD and distributing it to the states based on the fund gap vis-`a-vis the target communicated by the Ministry.

b. Assist States in development of Annual Action Plan and follow-up on the decisions taken during the meeting of Empowered Committee to finalize the Annual Action Plan.

c. Working with agencies such as UNDP, IIT, etc. and also assist States for the development of state-wise housing design typologies including Plan, Elevation, and Estimates appropriate to different regions.

d. Assist the Centre and States in implementing masons' training programme.

e. Support the States in identifying State Technical Support Agencies and conduct orientation and refresher training for state Technical Support Agencies and other state level technical personnel.

f. Coordinate production and supply of quality building materials. Negotiate with industry associations to facilitate access to construction materials at lower cost than available in the market and facilitate setting up of district materials banks.

g. To assist and advise the States in setting up project management units at State, District and Block level.

h. To contribute to the design and development of IT management systems to improve performance and transparency and reduce leakages. Identify appropriate monitoring indicators to be incorporated into MIS and support the Ministry of Rural Development in analyzing the MIS data.

i. To manage the content of Rural Housing Knowledge Network (RHKN) portal through involvement of stakeholders.

j. To conduct training programs for the officers of the Ministry as well as State Governments and Union Territories concerned with implementation of the housing scheme.

k. To publish books and literature and arrange for production of publicity material.

l. Organize national and regional workshops as per requirement of Ministry of Rural Development.

m. Hiring of professionals to undertake various activities essential to the execution, monitoring and improvement of Rural Housing programs.

n. Facilitate national media coverage on initiatives carried out in Rural Housing. Undertake research, pilot studies, monitoring and evaluation studies on Government's rural housing programme and to ascertain the status of rural housing in the country.

o. Develop proposals for R&D in rural housing in partnership with research institutes.

p. To take up such activities as necessary to further the objective of the Programme and assist the Ministry of Rural Development in Planning and Implementation of the Pradhan Mantri Awaas Yojana and such other related programmes as may be taken up.

3. Organizational Arrangements

3.1 The General Body (GB) of NRIDA comprises of maximum of 21 members. Hon'ble Minister for Rural Development is the Chairperson, Minister of State (Rural Development) is Co-Chairperson and Secretary, Rural Development is Vice-Chairperson of GB, NRIDA. Members of GB include representatives of Central Government, State Governments, technical bodies, registered bodies, institutions engaged in any activity connected with rural roads or any of the objectives of the National Rural Infrastructure Development Agency. Persons possessing special expertise, ability or experience relevant to the furtherance of the objectives of the Agency can also be included as Members in General Body. The composition of the General Body of the NRIDA was as under during the financial year 2021-22:

S. No.	Name / Designation	Occupation & Address	Position/ Capacity in GB, NRIDA
1	Shri Narendra Singh Tomar	Minister of Rural Development, Government of India, Krishi Bhavan, New Delhi	Chairperson (upto 06.07.2021)
	Shri Giriraj Singh	Minister of Rural Development, Government of India, Krishi Bhavan, New Delhi	Chairperson (from 07.07.2021)
2	Sadhvi Niranjan Jyoti	Minister of State (RD), Government of India, Krishi Bhavan, New Delhi	Co-Chairperson
3	Shri Nagendra Nath Sinha	Secretary (RD), Ministry of Rural Development, Government of India, Krishi Bhavan, New Delhi	Vice-Chairperson
4	Smt. Leena Johri	Additional Secretary & Financial Advisor, Ministry of Rural Development, Government of India, Krishi Bhavan, New Delhi	Ex- officio Member

S. No.	Name / Designation	Occupation & Address	Position/ Capacity in GB, NRIDA
5	Dr. Ashish Kumar Goel	Additional Secretary (RD), Ministry of Rural Development, Government of India, Krishi Bhavan, New Delhi	Director General
6	Shri Gaya Prasad	Deputy Director General (RH), Ministry of Rural Development, Government of India, Krishi Bhavan, New Delhi	Additional Director General
7	Director General (Road Development) & Special Secretary, Ministry of Road Transport & Highways, Government of India	-	Ex- officio Member
8	Director General, Forests & Special Secretary, Ministry of Environment, Forest and Climate Change, Government of India	-	Ex- officio Member
9	Advisor (Transport), Niti Ayog, Government of India	-	Ex- officio Member
10	Commissioner-cum-Special Secretary, Public Works Department, Government of Assam	-	Ex- officio Member
11	Principal Secretary, Department of Rural Development & Panchayati Raj, Government of Karnataka	-	Ex- officio Member
12	Secretary, Rural Works Department, Government of Bihar	-	Ex- officio Member
13	Additional Chief Secretary, Panchayat & Rural Development Department, Government of Madhya Pradesh	-	Ex- officio Member

S. No.	Name / Designation	Occupation & Address	Position/ Capacity in GB, NRIDA
14	Secretary, Department of Rural Development, Government of Himachal Pradesh	-	Ex- officio Member
15	Additional Chief Secretary, Rural Development Department, Government of Odisha	-	Ex- officio Member
16	Director, Central Road Research Institute, New Delhi	-	Ex- officio Member
17	Chairman and Managing Director, National Building Construction Corporation India Ltd., New Delhi	-	Ex- officio Member
18	Director General (Border Roads), Border Roads Organisation, New Delhi	-	Ex- officio Member
19	Prof. G. J. Joshi	Dean (Planning and Development), Sardar Vallabhbhai National Institute of Technology (SVNIT), Surat, Gujarat	Member
20	Shri M. K. Gupta	Retired Engineer-in-Chief, M.P.R.R.D.A., Bhopal, Madhya Pradesh	Member

3.2 The organizational structure of NRIDA, as approved by the General Body consists of 5 Divisions. NRIDA's organogram, showing division-wise distribution of work is given at Annexure I. Additional Secretary/ Joint Secretary (RC), Ministry of Rural Development is the ex-officio Director General of NRIDA. Following officers were functioning in NRIDA on deputation basis for all or part of the year 2021-22:

1. Shri Deepak Ashish Kaul, Director (F&A)
2. Dr. I. K. Pateriya, Director (P-III)
3. Shri Pradeep Agarwal, Director (P-I)
4. Shri P. Mohanasundram, Joint Director (Tech.)
5. Shri Satyendra Prasad, Joint Director(Tech)
6. Shri Sunil Kumar, Joint Director (P-III)
7. Shri Ashish Srivastava, Joint Director (P-III)

8. Shri Navneet Kumar, Joint Director (P-I)
9. Shri Rakesh Kumar, Deputy Director (P-III)
10. Shri Kailash Kumar Bisht, Deputy Director (F&A)
11. Dr. Pardeep Kumar, Deputy Director (F&A)
12. Shri C.P.S. Yadav, Assistant Director (P-I)
13. Shri Girish Chandra Singh, Assistant Director (F&A)
14. Shri Rajesh Makkar, Assistant Director (F&A)
15. Shri Rajkumar Arora, Assistant Director (F&A)
16. Shri Anand Kapur, Assistant Director (P-III)
17. Shri Tarun Kumar, Assistant Director (F&A)
18. Shri Pankaj Kumar Sinha, Assistant Director (F&A)
19. Shri Rajneesh Kumar, Assistant Director (F&A)
20. Shri Jitendra Jha, Assistant Director (F&A)

3.3 Other positions were managed by engaging personnel through manpower service provider agencies and engagement of Young Civil Engineers and consultants on contract basis. List of YCEs and Consultants functioning in NRIDA on contractual basis for all or part of the year 2021-22 are as bellow:

1. Shri B. C. Pradhan, Consultant Director
2. Shri Rajendra Goel, Consultant Director
3. Shri Vishal Srivastava, Consultant Director
4. Shri S.P. Yadav, Consultant Jt. Director
5. Shri Vijay Kumar Jha, Consultant Jt. Director
6. Shri Arun Saxena, Consultant Jt. Director
7. Shri Ram Avtar, Consultant Dy. Director
8. Shri Madan Kumar Santoshi, Consultant Jt. Director
9. Shri G. K. Dawar, Consultant Rajbhasha
10. Shri Devdutta Sharma, Consultant Rajbhasha
11. Shri Nagrale Tejas Moreshwar, YCE
12. Shri Undela Nagarjuna Reddy, YCE
13. Shri Rakshit Tyagi, YCE
14. Shri Akshay Kagla, YCE
15. Shri Galli Kiran Kumar, YCE
16. Shri Pulkit Narula, YCE

17. Shri Dipu Singh, YCE

18. Shri Mohit Chouhan, YCE

19. Shri Surendra Choudhary, YCE

20. Shri Arun Kumar Patel, YCE

21. Shri Prashank Kumar, YCE

22. Shri Nayaab Mittal, YCE

23. Shri Avinash Panda, YCE

24. Shri Rahul, Chartered Accountant

25. Shri Harsh Nisar, Data Scientist

26. Dr. Namisha Bansal, Data Scientist

27. Ms. Richa Marwah, Product Manager

28. Smt. Sonam Sharma, Product Manager

29. Shri Rajendra Singh Rathore, Product Manager

30. Shri Deepak Gupta, Planning & GIS Lead

4. Pradhan Mantri Gram Sadak Yojana - A Centrally Sponsored Scheme

4.1 Planning

4.1.1 District Rural Roads Plan and Core Network

The District Rural Roads Plan consists of the entire existing road network system in the District and also clearly identifies the proposed roads for providing connectivity to unconnected habitations economically and efficiently in terms of cost and utility. The Core Network is that network of rural roads that is essential to provide basic single all-weather access to all habitations.

4.1.2 All the State Governments have to prepare District Rural Road Plans and identify the Core Network for planning under the PMGSY. The final Core Network data has been received from all the States. However, some States have expressed the need to review the Core Network for modification in the structure or changing the connectivity status of habitations after preparation of a thorough inventory and ground-truthing. Some States have taken clearance for ground-truthing and accordingly made requisite changes in the Core network. Some States have revised the Core Network taking habitation as a unit of connectivity instead of the village (which was the case earlier for such States).

4.1.3 PMGSY-I

In case of hill states, the estimates for new construction woks were allowed to be prepared in two parts namely; Stage-I & Stage-II based on the site conditions. The first stage will consist of formation cutting, slope stabilization, protection works and drainage works. The second stage will include Granular sub-base (GSB), water bound macadam (WBM) layers and bituminous surface course. The second stage may be taken up after two rainy

seasons have elapsed to ensure adequate stabilization of the side slopes. The habitations concerned will not be counted as 'connected' till the second stage is taken up.

Some State governments had requested for sanction of stage–II road works and left-out bridges on the roads sanctioned under PMGSY-I in order to achieve all-weather road connectivity to the target habitations. Ministry had considered such stage-II road works, left-out bridge proposals of Uttarakhand and left out bridges of Sikkim, during 2021-22. The State-wise details of sanctions under PMGSY-I in the FY 2021-22 are at Annexure II (i)

4.1.4 Revision of DRRP for PMGSY-II

All the States were required to revise their District Rural Roads Plan (DRRP) as per PMGSY-II Guidelines and update the population of habitations as per Census Data 2011. All States and Union Territories were eligible for seeking sanctions under PMGSY-II after awarding 100% of New Connectivity and 75% of all the eligible up-gradation projects (and 90% length cleared) under PMGSY-I. States became eligible under PMGSY-II at different times. The State-wise details of sanctions under PMGSY-II in the FY 2021-22 are at Annexure II (ii).

4.1.5 Updation of DRRP-II and generation of Trace Maps for PMGSY-III

PMGSY-III mainly focuses on up-gradation of the existing through routes and Major Rural Links based on priority giving importance to connect habitation to critical facilities like the Gramin Agricultural Markets Higher Secondary Schools and Hospitals. A target length of 1.25 Lakh km of Through Routes/ Major Rural Links is to be upgraded under PMGSY-III with an expenditure of about Rs.80,250 crores. The PMGSY-III was launched in 2019 with target to complete the scheme by March 2025.

All States and Union Territories are eligible for seeking sanction under PMGSY-III after awarding 90% of the sanctioned length under PMGSY-I and PMGSY-II. Under PMGSY-III, 1573 numbers of roads of 12,577.96 km length and 63 numbers of bridges were sanctioned during the financial year 2019-20 and 5820 numbers of roads covering 43,906.07 km length and 471 numbers of bridges have been sanctioned during financial year 2020-21. During the year 2021-22, 3341 numbers of roads covering a length of 25,466.23 km of length and 195 numbers of bridges have been sanctioned. State-wise details of sanctions under PMGSY-III in the FY 2021-22 are at Annexure II (iii).

4.1.6 Road Connectivity Project for Left Wing Extremism Affected Areas (RCPLWEA)

The RCPLWEA is envisaged to bring better rural road connectivity in 44 most affected LWE districts and some adjoining districts in 9 states, which are critical from a security angle as per the inputs and lists of roads/districts provided by the Ministry of Home Affairs (MHA). The roads being taken up under RCPLWEA include Village Roads (VRs), Other District Roads (ODRs), and up-gradation of the existing Major District Roads (MDRs) that are critical from the security point of view. Bridges up to a span of 100 meters, critical from a security angle are also allowed on these roads. The roads to be constructed under RCPLWEA have been identified by the Ministry of Home Affairs in close consultation with the State Governments and the security agencies.

In December 2016, Government approved 5,412.80 km of roads under RCPLWEA with an outlay of Rs 11,725 crores against which 5,236.37 km (351 roads and 254 LSBs) have been sanctioned at a cost of Rs.5,546 crores leading to a savings of Rs.6,179 Crores. On account of these savings, MHA had further recommended 6,043 km in Phase-II against which 4,712.40 km (565 roads and 173 LSBs) have been sanctioned at a cost of Rs.3,953 crores during 2019-20. Further, 68.85 km (12 roads) have been sanctioned for Rs 53.12 Crores during 2020-21. A total of 228 numbers of roads comprising of 1633.75 km of length and 113 numbers of LSBs for Rs.1501.55 crores were sanctioned in 2021-22. State-wise details of sanctions during 2021-22 are at Annexure II (iv).

4.2 Technical Support

4.**2.1** **Principal Technical Agencies:** Seven Principal Technical Agencies (PTAs), including IITs and other premier technical institutions were assigned during 2002-03 to provide technical support and take up research projects, study, and evaluate different technologies and advise on measures to improve the quality and cost norms of Rural Roads. 10% of the DPRs proposed by the state are scrutinized by the Principal Technical Agencies. The sample DPR for scrutiny by the PTA are shortlisted by using smart software developed by NRIDA. The list of PTAs as on March 2022 is at Annexure III.

4.**2.2** **State Technical Agencies:** 88 Engineering Institutions of repute have been assigned as State Technical Agencies (STAs) upon recommendation of the State Governments and certain pre-fixed qualification parameters. The State Technical Agencies (STAs) scrutinize 100% of the project proposals prepared by the State Governments and provide technical support to them. The scrutiny by the STAs expedites the process of project clearance, establishes a certain degree of technical discipline and rigor in the implementation of PMGSY. List of STAs as on 31st March 2022 is at Annexure IV.

4.3 Project Scrutiny and Clearance under PMGSY-III

4.3.1 Selection of Roads

Under PMGSY–III, District Rural Roads Plan is the basis for selection of roads. The existing DRRP prepared for PMGSY–I and PMGSY-II could be revised and updated incorporating new construction and improvements of the surface type and condition of the roads as of 2018 or later when the State comes for sanction of projects on the basis of addition/ upgradation of roads under various schemes of the Central and State Governments. Such updating of DRRP, may be carried out every alternate year, incorporating the surface condition of all roads and any new alignments developed under various schemes of the Central and State Governments.

The DRRP would first be prepared at the Block level taking into consideration the Census data of 2011 and in accordance with the directions contained in the Operations Manual of PMGSY-I.

The Draft DRRP, including the existing road network, identified Through Routes/Major Rural Links and initial candidate roads will be uploaded on OMMAS and linked with the GIS platform. This is a mandatory requirement under PMGSY-III, as the finalization of

DRRP, selection of candidate roads and clearance of proposals will be based on verification of alignments using GIS.

While developing DRRP on GIS platform (Geospatial Rural Road Information System) as an add-on layer to the GIS, an inventory of local and marginal materials for road works would also be created to encourage use of such materials to facilitate cost-effective construction the State shall place the DRRP before the Intermediate Panchayat for consideration and approval. It would be simultaneously sent, along with the list of all candidate Through Routes/ Major Rural Links to the Members of Parliament (MPs), for their comments.

After approval by the Intermediate Panchayat, the Plans would be placed before the District Panchayat for its approval. It will be incumbent on the District Panchayat to ensure that the suggestions given by the Members of Parliament are given full consideration within the framework of these Guidelines. Once approved by the District Panchayat, a copy of the DRRP would be sent to the State Level Standing Committee (SLSC). The State shall finalize the draft DRRP uploaded on OMMAS. No road work shall be included in the CUCPL unless it forms part of the approved DRRP.

The roads selected under PMGSY–III are expected to be mainly Through Routes. Roads catering to large populations by connecting habitations over a large area and which act as collectors of traffic from smaller roads, would be treated as Through Routes. All Through Routes/Major Rural Links in a Block will be identified and numbered during the preparation of the road inventory with the help of Trace Maps. The State may calculate the Utility Value of all these identified through routes for selection in Candidate Roads if they meet the objectives of PMGSY-III.

"Trace Mapping": For the purpose of planning and optimal selection of candidate routes or identification of Major Rural Links/Through Routes, the State/PIU would trace the route from each habitation in a Block to the nearest mandi/health/education facilities on a map to identify routes which are common to maximum habitations in their approach to their respective nearest facilities. The Utility Value (UV) of unit road length needs be computed by arriving at the cumulative line score of the road divided by its proposed length for upgradation. Thus the utility value is the line score per unit length. The candidate roads are to be selected by trace mapping.

The candidate roads would be arranged in descending order based on the utility values to arrive at the priority list for the district considered. When two or more candidate roads are found to have the same utility values, the road serving more population should be given preference. It would be necessary to also keep track of inter block or inter district roads having potential and such roads would also become candidate roads. It is likely that both segments will have high utility and it is preferable if the entire length is included in one go.

The Comprehensive Upgradation cum Consolidation Priority Lists (CUCPL) will be prepared District-wise. The roads will be ranked by utility value, District-wise Refer Annexure-1 for determining the marks obtained by the road. Annual proposals will be

made from this list in order of ranking, subject to qualifying the PCI. The CUCPL shall be revised on 31st March each year based on latest weighted average PCI. The candidate roads shall be preferably of length not less than 5 kms. The CUCPL will be verified on the ground on sample basis through the STAs and the NQM/SQM system before it is processed for further approvals. The STAs will undertake 100% verification of the List for consistency check on the basis of the PCI data furnished by the District and also sample ground checking. The Detailed Project Reports (DPRs) are prepared by the States and after approval by the State Technical Agencies are forwarded to NRIDA.

4.3.2 Smart Scrutiny and Planning Audit

The States/UTs needs to update their District Rural Roads Plan (DRRP-II) as per PMGSY-III Guidelines and update the population of habitations as per Census Data 2011. DRRP is the complete list of all the existing roads (NH, SH, MDR, ODR, VR etc.) in a District and the DRRP is to be prepared on the GIS platform. The States/UTs thereafter conducted a facility survey to geo-tag existing rural facilities in each block using the Geo-PMGSY application. On preparation of DRRP and completion of facility survey, a "Trace Map" is generated based on a tool created by NRIDA. A Trace Map is a map showing all the DRRP roads in a block ranked and colour coded based on the population depending on the road to reach its nearest agricultural and rural markets higher secondary schools, administrative, transport and hospitals facilities. The Trace Map is generated based on a custom network analysis algorithm developed using Open Source Software such as QGIS and GRISS. Each block has a separate Trace Map and candidate roads are selected with its help. Thereafter, OMMAS is used for the system-based generation of Comprehensive Upgradation cum Consolidation Priority Lists (CUCPL) for the selection of proposals.

4.3.3 Field visit of NRIDA Team

Detailed Proposals uploaded are analyzed from the proposals analysis sheet downloaded from OMMAS. Sample DPRs, 15% for scrutiny at NRIDA and 10% DPRs for scrutiny by PTA are shortlisted which are found to be outliers using smart software developed by NRIDA. After technical scrutiny of such DPRs, states are advised to correct/ revise the DPRs to economize the provisions wherever it is felt necessary. Also, NRIDA technical team along with NQMs visit the state to further verifying the DPRs by making field visits to check the provisions in the high-cost proposals and suggest for modifications, if required to economize the cost. Due to such exercise, the cost of the proposal is revised by the state as a result of which substantial savings in cost has resulted.

After above compliances, the proposals are placed before the Pre-Empowered committee. After submission of substantial compliance to the observations of Pre EC by the state governments, these scrutinized proposals are placed before the Empowered Committee for consideration. Proposals for a total value of Rs.21,024.56 crores, covering a length of 28,256.74 km (3,702 number of road works and 475 number of bridges) were cleared by the Ministry during 2021-22 based on the recommendation of the Empowered Committee under PMGSY-I, PMGSY-II, and PMGSY-III. The programme-wise sanction details during the 2021-22 financial year are noted below:

Sl. No.	Programme	Value of proposals cleared (Rs. in crores)	No. of roads	Length in km.	No. of Bridges
1.	PMGSY-I	1,088.69	133	1,156.76	159
2.	PMGSY-II	19.73	-	-	8
3.	PMGSY-III	18,414.57	3,341	25,466.23	195
4.	RCPLWEA	1,501.55	228	1,633.75	113
	Total	**21,024.56**	**3,702**	**28,256.74**	**475**

The State-wise sanction details are at **Annexure II (i), Annexure II (ii) Annexure II (iii) & Annexure II (iv).**

During the year 2019-20, 2020-21, 2021-22 and 2022-23 (upto December 2022) the total saving on account of reduction in cost after the scrutiny of proposals have been Rs.2125.90 crore, Rs.2,883.47 crore, Rs.581.99 crore and 946.99 crore respectively. Thus, total amount of savings made in PMGSY-III is Rs. 6538.35 crore. Apart from this considerable amount of savings have also been made in clearance of PMGSY-I and RCPLWEA projects. The details of the saving done in PMGSY-III projects are given below:

PMGSY-III - State-wise cost saving in 2019-20							
Sl. No.	**State**	**Sanctioned Year**	**No of Road Works**	**Total Road Length (in km)**	**Pre-EC Average Cost (Lakhs/ km)**	**Sanctioned Average Cost (Lakhs/km)**	**Reduction in Cost after scrutiny of proposals (Rs. in crores)**
1	Andhra Pradesh	2019-20	129	935.84	58.59	56.03	23.95
2	Chhattisgarh	2019-20	355	3729.17	87.30	60.62	994.87
3	Karnataka	2019-20	445	3226.21	81.44	64.92	533.08
4	Madhya Pradesh	2019-20	108	1444.32	111.63	79.13	469.44
5	Rajasthan	2019-20	237	2198.39	55.09	51.81	72.03
6	Tamil Nadu	2019-20	299	1044.04	56.09	52.97	32.53
Total			**1573**	**12577.97**	**450.14**	**365.48**	**2125.90**

PMGSY-III - State-wise cost saving in 2020-21							
Sl. No	**State**	**Sanctioned Year**	**No of Road Works**	**Total Road Length (in km)**	**Pre-EC Average Cost (Lakhs/ km)**	**Sanctioned Average Cost (Lakhs/ km)**	**Reduction in Cost after scrutiny of proposals (Rs. in Crore)**
1	Andhra Pradesh	2020-21	170	1378.54	68.52	55.14	184.49
2	Assam	2020-21	429	2759.72	71.75	70.86	24.65
3	Bihar	2020-21	169	1390.31	87.11	82.07	70.11
4	Chhattisgarh	2020-21	180	1882.45	57.51	56.76	14.04
5	Gujarat	2020-21	133	1299.88	79.23	60.09	248.78
6	Gujarat	2020-21	171	1715.49	63.28	56.46	117.05
7	Haryana	2020-21	83	688.94	56.94	55.68	8.70
8	Haryana	2020-21	120	1216.95	45.62	45.16	5.66
9	Karnataka	2020-21	50	321.93	81.44	66.69	47.49
10	Karnataka	2020-21	302	1879.81	65.95	59.75	116.55
11	Kerala	2020-21	20	104.56	84.58	79.24	5.58
12	Madhya Pradesh	2020-21	377	4779.21	67.74	66.30	68.97
13	Maharashtra	2020-21	380	2581.72	82.38	74.36	207.07
14	Odisha	2020-21	494	3327.50	60.52	59.69	27.63
15	Odisha	2020-21	338	2118.84	58.88	56.49	50.72
16	Punjab	2020-21	98	1045.51	74.69	70.32	45.70
17	Punjab	2020-21	108	1038.49	77.18	73.74	35.72
18	Rajasthan	2020-21	374	3622.98	52.96	53.45	-17.86
19	Tamil Nadu	2020-21	582	2157.17	63.46	58.65	103.80
20	Telangana	2020-21	152	1119.94	72.17	58.78	149.95
21	Telangana	2020-21	194	1217.05	61.21	61.70	-5.95
22	Uttar Pradesh	2020-21	898	6287.38	88.23	66.37	1374.62
Total			**5822**	**43934.37**	**1521.35**	**1387.75**	**2883.47**

PMGSY-III - State-wise cost saving in 2021-22							
Sl. No.	**State**	**Sanctioned Year**	**No of Road Works**	**Total Road Length (in km)**	**Pre-EC Average Cost (Lakhs/ km)**	**Sanctioned Average Cost (Lakhs / km)**	**Reduction in Cost after scrutiny of proposals (Rs. in crores)**
1	Haryana	2021-22	56	590.45	52.31	47.92	25.92
2	Jharkhand	2021-22	108	979.35	70.24	64.29	58.27
3	Kerala	2021-22	123	581.67	68.87	66.75	12.33

4	Madhya Pradesh	2021-22	501	5167.03	65.03	64.26	39.67
5	Maharashtra	2021-22	34	227.65	82.38	75.82	14.93
6	Maharashtra	2021-22	16	116.55	82.38	73	10.93
7	Odisha	2021-22	113	737.87	58.88	57.72	8.56
8	Odisha	2021-22	40	293.84	58.88	57.26	4.77
9	Odisha	2021-22	427	2948.38	53.17	51.32	54.55
10	Tamil Nadu	2021-22	275	1253.53	71.53	59.45	151.43
11	Telangana	2021-22	10	58.86	61.02	57.57	2.03
12	Uttar Pradesh	2021-22	1078	8249.42	74.44	71.74	222.73
13	Uttar Pradesh	2021-22	558	4233.37	97.45	98.02	-24.13
Total			**3339**	**25437.97**	**896.58**	**845.12**	**581.99**

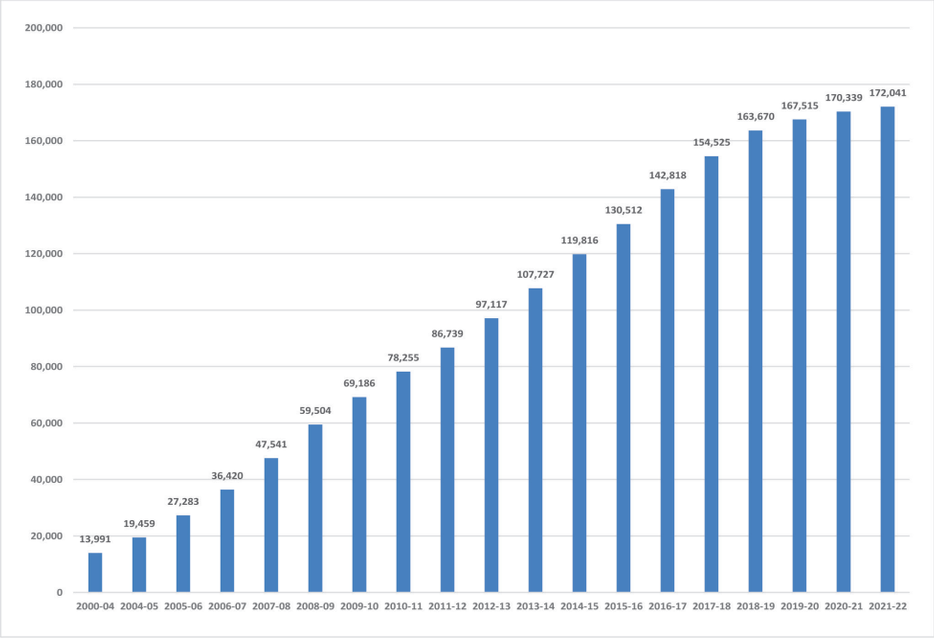
PMGSY-III - State-wise cost saving in 2022-23 (up to December 2022)

Sl. No	State	Sanctioned Year	No of Road Works	Total Road Length (in km)	Pre-EC Average Cost (Lakhs/ km)	Sanctioned Average Cost (Lakhs/ km)	Reduction in Cost after scrutiny of proposals (Rs. in crore)
1	Assam	2022-2023	155.00	996.24	67.21	61.01	61.77
2	Bihar	2022-2023	280.00	2172.00	78.18	63.75	313.42
3	Bihar	2022-2023	263.00	2438.32	97.39	87.82	233.35
4	Himachal Pradesh	2022-2023	45.00	440.18	125.41	95.90	129.90
5	Jharkhand	2022-2023	336.00	3106.13	62.16	65.59	-106.54
6	Jammu & Kashmir	2022-2023	155.00	1272.43	138.14	106.71	399.92
7	Madhya Pradesh	2022-2023	91.00	973.99	65.83	66.13	-2.92
8	Rajasthan	2022-2023	3.00	31.05	71.52	67.31	1.31
9	Tripura	2022-2023	32.00	231.64	107.02	92.49	33.66
10	West Bengal	2022-2023	144.00	857.25	79.99	68.51	98.41
11	Maharashtra	2022-2023	412.00	2551.63	71.48	79.94	-215.87
12	Karnataka	2022-2023	35.00	230.22	61.11	60.86	0.58
Total			**1951.00**	**15301.08**	**1025.44**	**916.02**	**946.99**

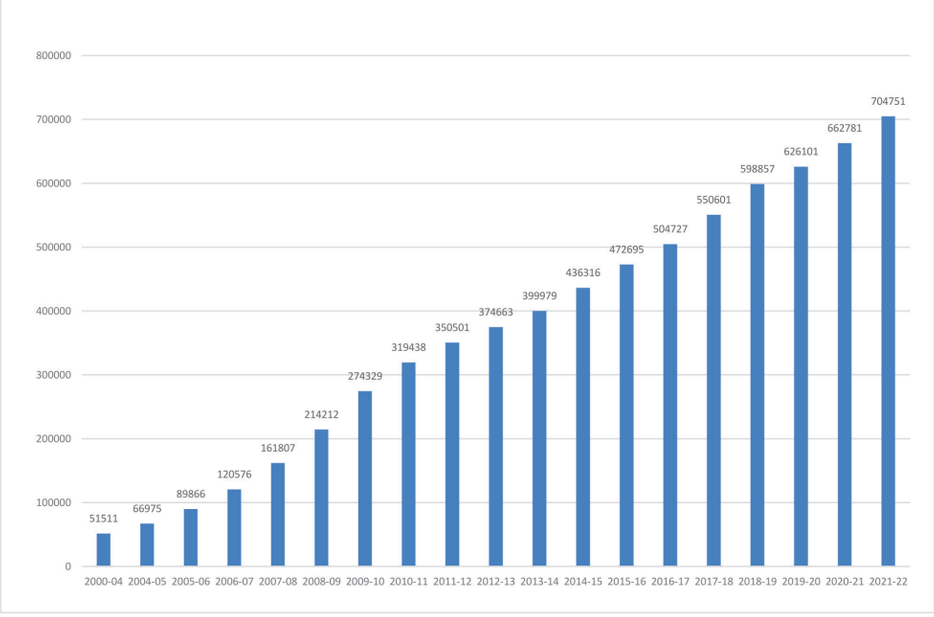
4.4 Physical Achievements

Under the Pradhan Mantri Gram Sadak Yojana (PMGSY), out of total 1,78,184 eligible unconnected habitations (under category 250+), 1,72,041 habitations have been connected (including habitations connected through other State schemes) by all-weather roads measuring 7,04,751 km length of New Connectivity and Upgradation upto 31st March 2022. The States/UTs-wise details are given at Annexure V (i) & Annexure V (ii).

PMGSY Cumulative Connectivity Trend upto 31st March 2022
(No. of Habitations)



PMGSY Cumulative Connectivity Trend upto 31st March 2022
Road Length (Km)



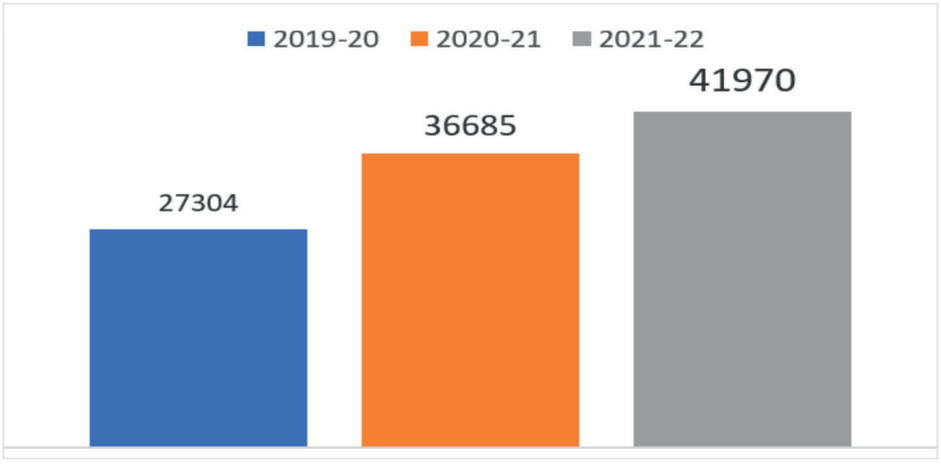
During the year under report 1,217 habitations have been connected by all-weather roads measuring 41,970 km length of New Connectivity and Up-gradation. The State-wise details are given at Annexure VI.

The regular monitoring of the scheme resulted into faster pace of construction and award of contracts during the period. Details are as under:

4.4.1 Physical Progress -Achievements

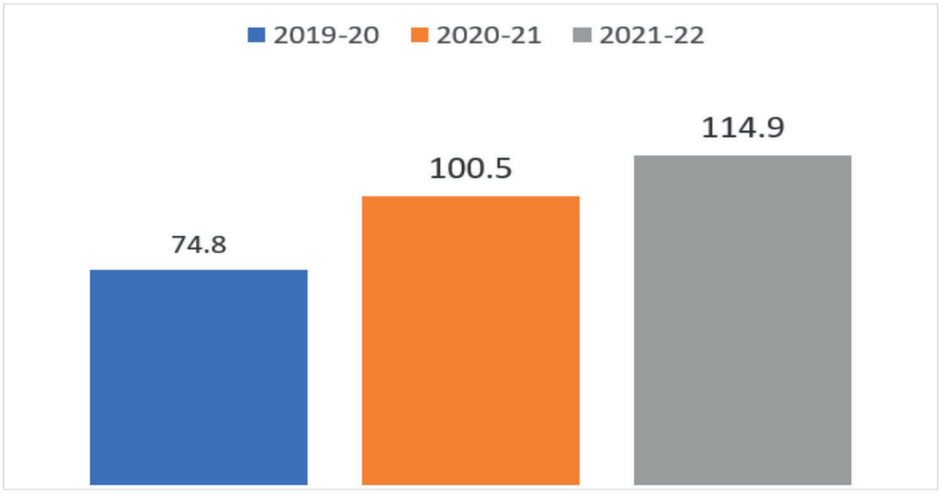
During the year 2019-20, 27,307 km road length was constructed. During the year 2020-21, 36,685 km road length with an average speed of 100.5 km per day has been constructed under PMGSY despite COVID related lockdowns. The length of 41,970 km has been constructed in FY 2021-22 with an average speed of 114.9 km per day, which is the maximum in the last three financial years despite COVID pandemic.

Length Constructed (km)



The length of 41,970 km has been constructed in FY 2021-22 with an average speed of 114.9 km per day, which is the maximum in the last three financial years. There is an increase in road length constructed during 2021-22 by 14% when compared with 2020-21 despite COVID pandemic.

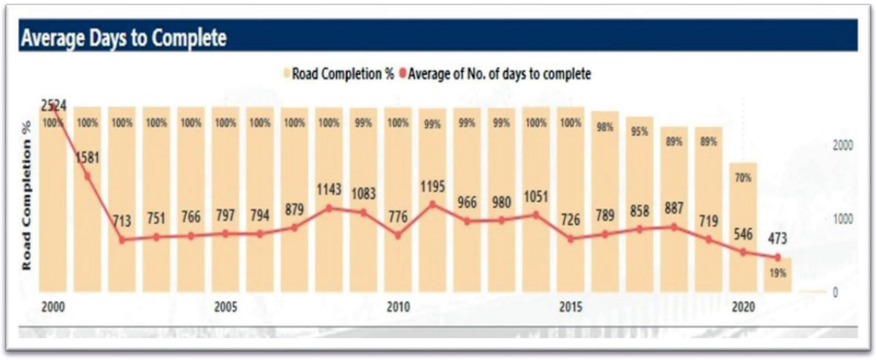
Length Constructed per day (km)



4.4.2 Reduction in Completion time of PMGSY Works

An exhaustive on line PMIS system of monitoring of activities of ongoing works has been implemented during the period, this has resulted into substantial reduction in time of completion of works from the date of sanction of works.

Average Days to Complete



4.5 Maintenance of Roads Constructed under PMGSY

A mandatory provision for five years post construction maintenance contract along with the rural road construction contract had been introduced from the year 2003 to ensure sustainability of the road assets created under the Programme. Considering the fact that the maintenance activities had not received due attention in States, a mechanism has been evolved wherein the release of programme funds to the States has been made contingent upon release of maintenance funds by the respective State Governments to the SRRDAs. A provision has also been incorporated in OMMAS to monitor the credit of maintenance fund as per commitment of the State and expenditure on each road. States are also being encouraged to put in place a State Specific Rural Roads Maintenance Policy (RRMP). NRIDA in collaboration with ILO has prepared a Policy Framework for framing rural roads maintenance policy. The Policy Framework along with a guidance note has been shared with the States in order to adopt and notify Rural Roads Maintenance Policy at state level. The policy and guidance note are helpful for the rural road agencies of the States to have a clear understanding about rural road maintenance and sustainability of rural roads network. So far, all the States/ UTs except Goa, Andaman & Nicobar Islands, Puducherry and Ladakh have prepared their Rural Roads Maintenance Policies.

4.6 Roads are being constructed, maintained & repaired as per the specification laid down in MoRD Specifications for Roads & Bridges published by IRC 2014. As a measure of further enhancing the focus on maintenance of roads during the defect liability period and also streamlining the delivery of routine maintenance of PMGSY roads, NRIDA has implemented the Electronic Maintenance of Rural Roads under PMGSY (eMARG) in all the states. eMARG came into operation on 1st April 2020 as a simple yet an extremely effective solution to problems related to maintenance of rural roads. Conceptualized on Performance Based Maintenance Contracts (PBMC), eMARG is a useful tool to show how issues related to maintenance of infrastructure can be solved across government departments with smart IT & Contract Management. PBMC is a type of contract in which payment to the contractor is made based on the actually achieved minimum desired

condition of road, its cross drainage works and traffic assets that have to be handled. Payments are based on how well the contractor manages to comply with the performance standards and service levels defined in the contract, and not on piece of work or quantity of work.

eMARG focuses on upkeep of PMGSY roads in all circumstances, hence entails performance based evaluation of roads for making maintenance related payments of PMGSY roads that are under DLP. All the states have started using the eMARG facility developed by NRIDA. eMARG is currently getting utilized by 1,593 district PIUs and 12,422 contractors all over India to perform inspections, generate and approve single click bills and make payments, substantially easing out the manual and tedious tasks. Payment of Rs.1,396 crore has been released through eMARG upto 31st March 2022 for maintenance of PMGSY roads under DLP since inception.

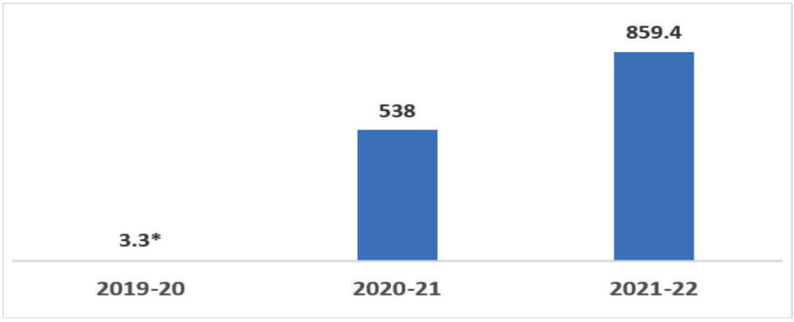
4.7 Expenditure on maintenance in five year DLP through eMARG

Maintenance monitoring through eMARG resulted into substantial improvement in ensuring that the same contractor maintains the roads in 5 year defect liability period. During the year, following has been achieved in terms of maintenance of roads: -

- Expenditure made through eMARG over last three FY

Since the inception of eMARG, the expenditure made on maintenance of road works under defect liability period has substantially increased. The expenditure of Rs.859.4 Crore has been made in the FY 2021-22.

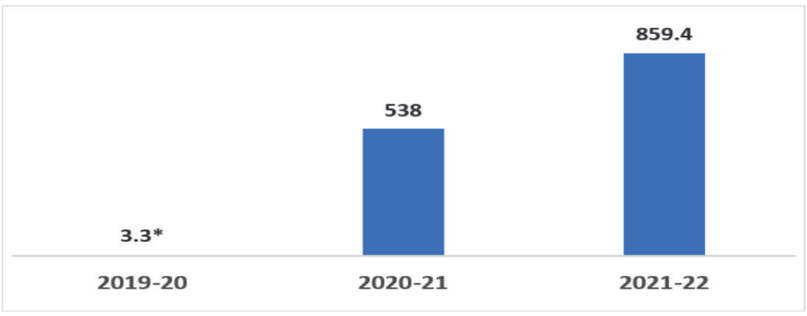
Expenditure in Crores



* eMARG was launched in the last quarter of financial year 2019-20

Similarly, number of roads on which expenditure has been made in maintenance period of 5 years increased on year to year basis.

% No of roads in DLP where expenditure incurred



- **Savings made through eMARG since inception**

Due to evidence based objective marking system of performance of roads during 5-year maintenance period, there has been a saving of Rs.363.51 crore as on 31 March 2022 since the implementation of e-MARG in 2019-20. This saving is due to performance of roads assessed in between 80% to 100%. In absence of objective marking system, payment would have been made 100%. In addition, the long pending bills of contractor that were not timely submitted by the contractors were made zero through eMARG system that would lead to a saving of Rs.337.94 crore to public exchequer. Thus, total saving of Rs.701.45 crore was made through eMARG since inception.

5. Quality Assurance Mechanism under Pradhan Mantri Gram Sadak Yojana

i. Pradhan Mantri Gram Sadak Yojana (PMGSY) envisages a three tier Quality Assurance Mechanism to ensure quality of road and bridge works constructed under PMGSY. The first two tiers of the structure are the responsibility of the respective State Governments and under the third tier, NRIDA engages independent National Quality Monitors (NQMs) for conducting inspections of projects, selected at random.

ii. As per the programme guidelines, ensuring the quality of road works is primarily the responsibility of the State Governments who are implementing the programme. NRIDA has issued general guidelines and prescribed Quality Assurance Handbooks to fulfill the Quality Assurance requirements in respect of material used and workmanship to be achieved during execution. Guidelines have also been issued for inspections of works by independent monitors under the second and third tier of the quality assurance mechanism. To make inspections trustworthy, it is being ensured that independent monitors at the second and the third tier take at least 10 geo-stamped digital photographs including one of the field laboratories, for each work and upload it on OMMAS MIS portal to facilitate public viewing of quality of road works executed under the programme. Based on the experience gained, these guidelines are reviewed and revised from time to time.

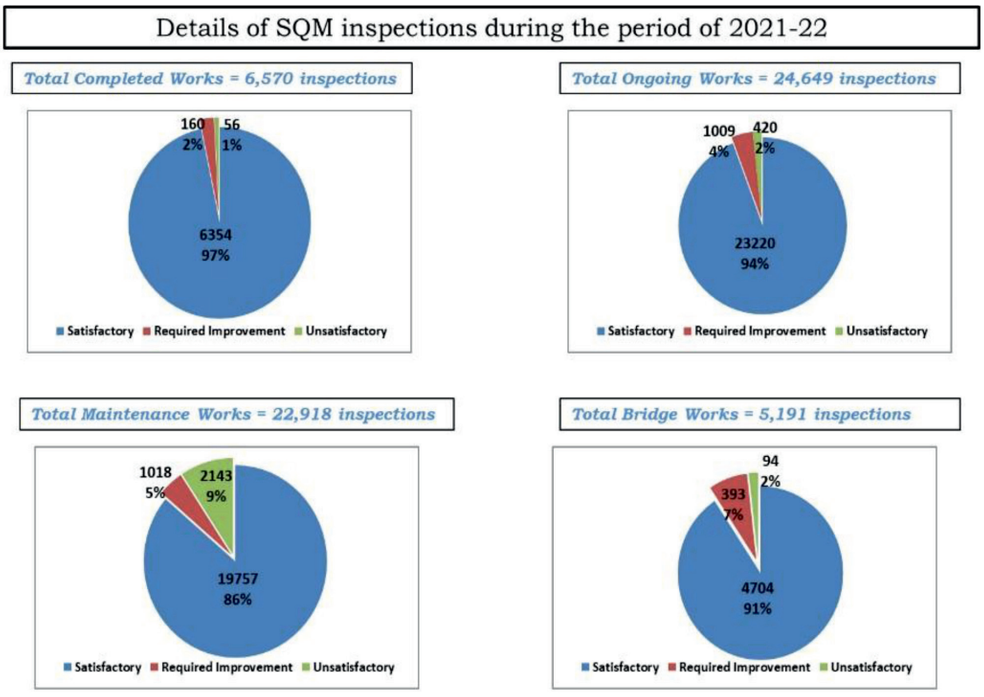
iii. The PIU is envisaged as a first tier of quality management with the primary and basic function of construction, supervision and quality control. Under the 1st tier of quality control mechanism, quality standards are enforced through in-house mechanism by supervising the site quality control laboratory set up by the contractor for each package and ensuring that mandatory tests are carried out at specified time and place by the specified person/ authority. In addition, to augment the field laboratories for non-frequent tests, State laboratories, as also district laboratories, have also been established.

iv. Under the second tier, independent monitoring of quality at the State level has been prescribed under the control of SRRDA. The State Quality Coordinator (SQC) at SRRDA Headquarters is required to monitor the quality of works by deploying State Quality Monitors (SQMs), independent of the implementing units. These SQMs carry out the inspections as per the prescribed guidelines and upload the detailed inspection report in prescribed e-form with abstract of quality grading and geo-

referenced photographs of works, in OMMAS. The e-form has been developed and made mandatory for inspection of completed as well as ongoing works. SQMs check the establishment of field laboratories also. As per guidelines, each road work is to be inspected by the State Quality Monitors at least three times. The first two inspections of every work should be carried out during the execution of work, spaced at least three months apart, and the last inspection should be carried out on the completion of the work, as soon as possible but preferably within 4 months of completion of the work. During the year 2021-22, a total number of 59,328 inspections have been conducted by SQMs which is highest ever achieved in PMGSY. This is 113% higher than the SQM inspections conducted during the year 2020-2021. The year-wise number of SQM inspections conducted during last 5 years are as under:

Year	Number of SQM Inspections
2021-22	59328
2020-21	27826
2019-20	36690
2018-19	37694
2017-18	40127

The quality profile of projects, based on SQM inspections for *ongoing, completed, maintenance categories of road and bridge* projects are given below:

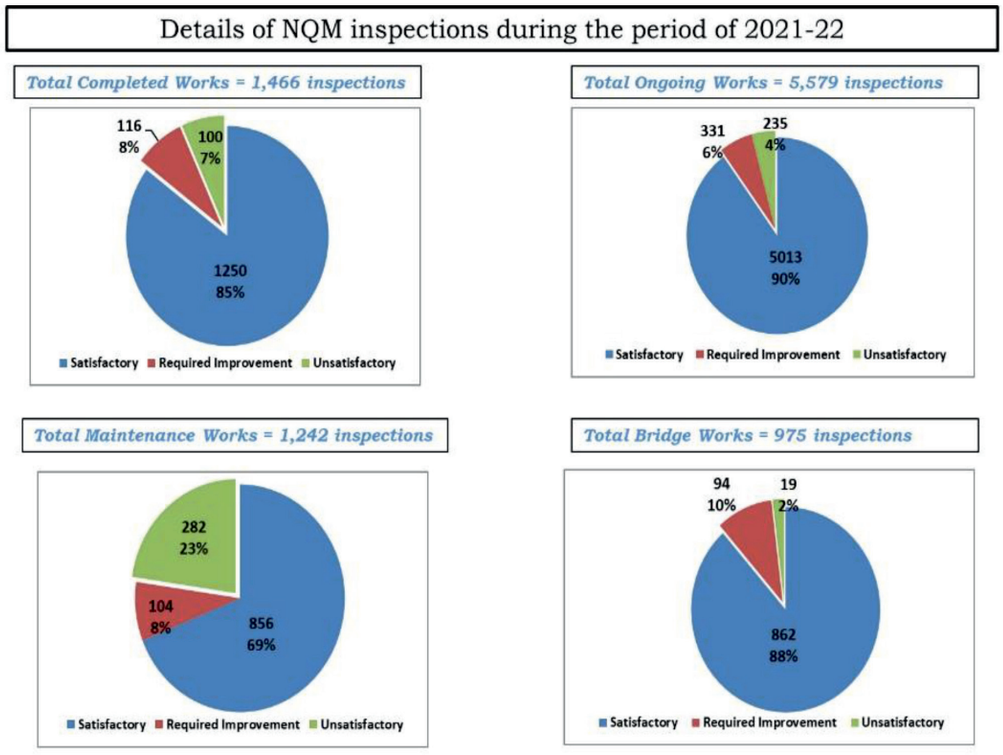


v. The third tier of the quality mechanism is an independent monitoring mechanism at the central level by NRIDA. The objective of third tier quality mechanism is to monitor the quality of road and bridge works executed by the States with a view to ensure that the road and bridge works under the programme conform to standards and to see whether the quality management mechanism in the State is effective. The

role of this tier is also to provide guidance to the State implementation machinery and the field engineers. Under this tier, retired senior engineers termed as National Quality Monitors (NQMs) are engaged for inspections of road and bridge works. The works for inspection are usually selected based on their physical progress. The basic objective of this tier is to identify systemic issues in quality assurance mechanism of the State and provide onsite guidance to field staff for better understanding of specifications and good construction practices. During the year 2021-22, a total number of 9,262 inspections have been conducted by NQMs. This is 249% higher than the NQM inspections conducted during 2020-21. The year-wise number of NQM inspections conducted during last 5 years are as under:

Year	Number of NQM Inspections
2021-22	9262
2020-21	2653
2019-20	8989
2018-19	9356
2017-18	9207

The quality profile of projects, based on NQM inspections for ongoing, completed, maintenance category of road works and bridge projects are given below:



vi. The States are required to send Action Taken Reports (ATRs) in respect of works graded as 'Satisfactory Requiring Improvement (SRI)' and 'Unsatisfactory (U)' by the NQMs during their field inspections. These ATRs are further processed at NRIDA and a decision about grade improvement is taken based on documentary proof including

photographs of road and bridge works and recommendation of the SRRDA based on ground verification by SQM.

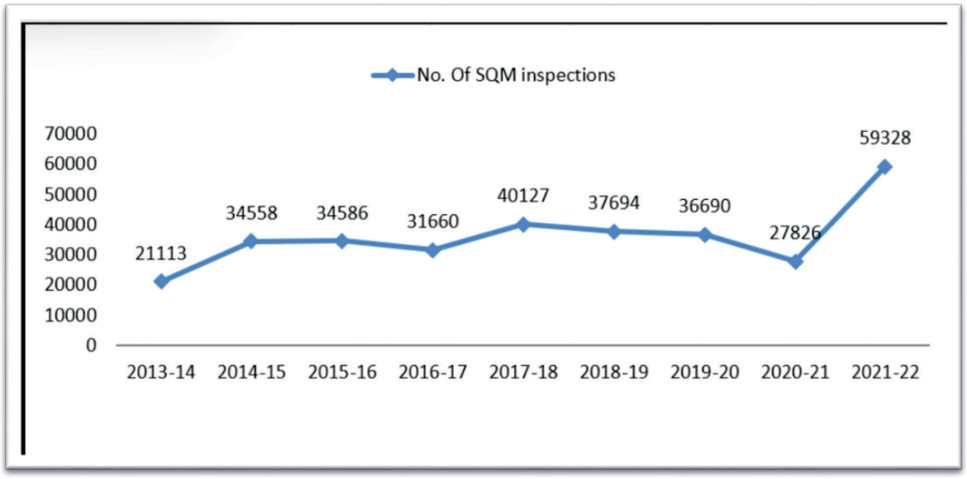
vii. The status of ATRs during the period 2021-22 is given below:

ATRs Pending with States as on 01.04.2021	ATRs generated during FY 2021-22	Total ATRs due for submission till 31.03.22	ATRs submitted during FY 2021-22	ATRs accepted during FY 2021-22	ATRs pending with States as on 31.03.22
1,041	895	1,936	662	368	906

5.1 Strengthening of 2nd Tier of Quality Assurance Mechanism

As on 1st April 2021, number of empanelled SQMs as per OMMAS was 1,192. With the empanellment of 136 new SQMs, this was increased to 1,328 during 2021-2022. With the augmented strength of SQMs, the number of inspections under the second tier has increased from 27,826 in 2020-21 to 59,328 in 2021-22 which is highest ever achieved in PMGSY, as indicated in the graph below:

Graph depicting periodical increase in SQM inspections



Source: www.omms.nic.in

Performance review of the existing SQMs:

All the States were advised to start periodic performance evaluation of SQMs by a Performance Evaluation Committee. Accordingly, those SQMs, whose performance is reported as unsatisfactory, need to be de-empanelled by the respective States. During the year 2021-22, performance of SQMs was evaluated by five states.

5.2 Strengthening of 3rd Tier of Quality Assurance Mechanism

As on 1st April 2021, number of empanelled NQMs was 135. Thereafter, 36 new NQMs have been empanelled based on recommendations of an independent Selection Committee comprising of professional members from reputed Technical Institutes/ organizations under the Chairmanship of Additional Secretary (RD), Ministry of Rural

Development. 12 NQMs got de-empanelled during the same period, leading to a total of 159 empanelled NQMs as on 31st March 2022.

Empanellment of new NQMs

i. **26th Selection Committee Meeting held on 7th May 2021**

The Committee after scrutiny of CVs of candidates, recommended 26 candidates for empanelment as NQMs. Out of those 26 candidates, 16 had undergone mandatory three day orientation programme and have started working as NQM.

ii. **27th Selection Committee Meeting held on 28th June 2021**

The Committee after scrutiny of CVs of candidates, recommended 24 candidates for empanelment as NQMs. Out of those 24 candidates, 20 had undergone mandatory three day orientation programme and have started working as NQM.

Performance Review of the existing NQMs:

With a view to maintain quality of inspections, the performance of existing NQMs is periodically evaluated by Performance Evaluation Committee (PEC), consisting of senior professors of engineering colleges who are associated with the program as Principal/ State Technical Agencies (PTAs/STAs). The PEC evaluates the reports of the NQMs. These observations are placed before the Selection Committee for consideration. During the year 2021-22, performance of 75 NQMs was evaluated by the performance review committee.

5.3 Mobile Application 'Meri Sadak' for Citizen Feedback on PMGSY Projects

NRIDA launched a Mobile Application named 'Meri Sadak' on 20th July 2015 with the objective of enabling the citizens to register their feedback / complaints about PMGSY projects along with geo-referenced photographs in OMMAS.

The Mobile Application '**Meri Sadak**' can be downloaded free of cost from Google Play Store and also from the programme website of PMGSY i.e. omms.nic.in. Besides English, this Mobile App is also available in Hindi and Odiya. On successful submission of feedback/ complaint, the citizen receives a unique feedback number on mobile which enables them to monitor the status of their complaints.

The State Quality Coordinators (SQCs) of the respective States have been designated as Nodal Officers for handling feedback/ complaints through this application. Interim response to the citizens is to be given within 7 days from the receipt of the complaint / feedback and final action is taken within a period of 60 days.

The Mobile App has gained popularity among the masses and 11.57 lakhs users have downloaded this Mobile App till 31st March, 2022. During 2021-22, 38,000 new users have registered on 'Meri Sadak'.

During the financial year 2021-22, a total of 6,107 suggestions/complaints were received through 'Meri Sadak' Mobile/Web Application. Out of these, 6,079 suggestions/complaints pertaining to PMGSY were forwarded to the concerned State Governments for further necessary action and the balance 28 were returned to the

complainants as their suggestions/complaints did not pertain to PMGSY. Out of the total 6,079 accepted suggestions /complaints, final reply for 5,081 complaints and interim reply for the remaining 998 have been provided to the complainants by 31st March 2022.

The Mobile application '**Meri Sadak**' has also been enabled to register citizen feedback/ complaints about Non-PMGSY roads. Such complaints are forwarded to Centralized Public Grievance Redressal and Monitoring System (CPGRAMS) for further necessary action. Till 28th January 2023, 2,964 feedback/complaints pertaining to Non- PMGSY works have been registered on 'Meri Sadak' application, all these complaints were forwarded to CPGRAMS and 2,422 complaints have been disposed off.

6. Monitoring and Management Information System

6.1 On-line Management, Monitoring and Accounting System (OMMAS)

An On-line Management, Monitoring and Accounting System (OMMAS) for the PMGSY is in place to effectively monitor the entire Programme and bring about greater efficiency, accountability and transparency in implementation. The system is available at the website URL http://omms.nic.in.

The OMMAS facilitates the operational requirements of planning, scheduling, monitoring, tracking, execution and accounting in implementing the PMGSY scheme. OMMAS is intended to serve the requirement of decision-making authorities at various levels, quality monitors, DPIU's, NRIDA and MoRD.

Considering the period as well as usage of the OMMAS application and based on the user inputs including the changes in the level of operations and in view of the latest developments in terms of technology, OMMAS is improved and augmented from time to time.

6.2 Release of facility Data in Public Domain

NRIDA has heavily invested in digitizing the DRRP road network and habitation data on GIS over the last few years. NRIDA has digitized on GIS about 24 lakh km. of road network.

This data especially captures the rural roads, over 1 million habitations and facilities in rural hinterlands and remote areas which existing public and private mapping datasets do not cover meaningfully. Additionally, under PMGSY-III, more than 8 lakh rural facilities have been geo-tagged such as:

- Medical facilities
  - Primary Health Centre
  - Community Health Centre
  - Bedded Hospital
  - Veterinary Hospital
  - High schools
- Educational facilities
  - High School

- Higher Secondary School/Girls High School/ITIs
- Degree College

- Market facilities
  - Mandi/GrAMs/Rurban Growth Cluster
  - Warehouse/Cold Storage/Sugar Mills/Agro Industry
  - Collection Centre or pack house
- Transport facilities
  - Bus Stand
- Others facilities
  - Bank
  - Administrative Centre (Block, Panchayat Hqr.) etc.

NRIDA released the above mentioned data in Public Domain on 22nd February 2022. This data is available at https://geosadak-pmgsy.nic.in/OpenData. Also, NRIDA has collaborated with Gati Shakti Project wherein NRIDA shared following Open data, which will be incorporated in their existing applications:

1. Habitation Shape Files PAN India
2. Road District Rural Road Plan PAN India
3. Rural Facilities Data such as Markets, Schools, Health Centers, Gram Mandi, Banks, etc. PAN India
4. PMGSY Road Proposals proposed by States PAN India

6.3 Features of OMMAS 2.0

- **PMIS** – Project Monitoring Information System - The module is aimed at bringing in a project management methodology to the construction/upgradation of roads and bridges under PMGSY for a disciplined tracking and monitoring. In the first step, PIU staff defines project plans (with timelines) for their awarded works. Once the plan is formulated and finalized, the PIU is required to continuously report progress against the planned activities. The progress can be tracked through Gantt chart and reports. The tracking gives a sense of the overall progress versus the original plan and any corrective actions can be taken proactively to finish the work without delays.
- **Quality Monitoring Mobile application** has been revamped for Inspection for National level Quality Monitors as well as State level Quality Monitors of all the states with new features of start and end point photograph, lab photograph and other parameters. Ticketing System is also integrated in QMS Application. Using this system Quality Monitors are able to raise their concern/ issues.
- **Quality Inspection E-Form–** Inspection form has been developed in digital format for PIUs & Quality Monitors i.e. NQMs & SQMs. It is useful for tracking the inspection status at all levels with different parameters such as earthwork, lab established, sub grade, CD structure, etc. Using this app Quality Monitors are able to provide their inputs digitally. This paperless inspection makes information more easily accessible, storable, maintainable, and shareable through the use of digital technology. The reports of monitors in digital format will be useful for analyzing the inspection reports.

- **State Brief & District Brief** -It provides the roads and bridges details, Sanction, Physical Progress, Financial Expenditure, Habitation Coverage, PMGSY-I, PMGSY-II, PMGSY-III, Completed, Ongoing work, Inspections by National Quality Monitors (NQMs) in the last three years, Maintenance Funds over the years for roads under Defect Liability Period (DLP) of 5 years details post construction, Quality Issues etc. of State and District. NRIDA has released It in the Citizen Section of OMMAS therefore citizens can view their State and District Road details.
- **Public Financial management System (PFMS)**: Single Nodal Account (SNA) implementation has been successfully completed in the REAT module. All payments in PMGSY of Programme, Admin & Maintenance funds are made through PFMS System.
- **Smart Scrutiny of State proposals leading to cost saving-** DPRs are selected by using Power BI tool. The list of High-cost proposals and outliers are identified using the said tool for scrutinizing the high cost DPRs at NRIDA. After detailed scrutiny at NRIDA total saving of Rs.6538.35 crore has been achieved since 2019-20 to December 2022.
- **Integration of OMMAS with other Applications –**
  - **Disha (District Development Coordination and Monitoring Committees):** To provide data like Project statistics, NSP Phase profile data, Pending Sanctioned Works, State wise abstract grading sanctioned Habitation, targeted habitations and achieved habitations to the Disha application.
  - Rural Dashboard: A Rural Dashboard is a visual display of data and in- formation that is used to provide an overview and performance of PMGSY Scheme. http://omms.nic.in/dbweb

  Features of Dashboard
  - Provides at-a-glance visibility
  - Improves decision making.
  - Easy performance checks and balances.
  - Up-to-date progress evaluation.
  - Real-time scheme analytics

- **EMARG**: During eMARG implementation in states, some state specific issues were identified and as per directions of NRIDA these changes have been implemented.
- Publishing of package-wise schedule for mandatory Routine Inspection
- Bi-monthly Routine Inspection (km-wise) of each road by the Engineering staff has to be done in scheduled period
- Performance Evaluation (km-wise) in every two months
- Provision for handling late bill submission by the contractor (through Delayed payment certificate)
- Module development for compliance regarding payment of pending bills through eMARG before 1.4.2020.
- Merging of eMARG Inspection & notification app
- Package reversal/unlocking facility to PIUs for correction of data entry mistakes.

- Enhancement and addition in Dashboard/Query/Report services.
- Maintenance of existing DLP modules of eMARG
- Integration of eMARG with AI module for automation of inspections on pilot basis.
- **PRAYAS**: Integration with DARPAN Portal for District Level KPI monitoring which is maintained by NIC.
- **GEPNIC**: Integration with GEPNIC Portal of NIC for centralized tendering. Sanctioned packages are pushed to GEPNIC from OMMAS and pulled back on completion of tendering activities. This allows for real time view of the stages under-which works are tendered.

6.4 GIS based planning

Implemented an end-to-end system from inventory, planning to sanctioning of PMGSY-III works included in Geo Sadak GIS Application:

- Proposal Drawing through Trace feature in Proposal module
- Candidate Road Colour coding added to display partial length and full length
- Sanction Year and Batch of Proposal added to proposal module
- Dynamic display of length of Proposal while tracing proposal
- Zoom to specific district/block button added to visualization module
- Role Selection feature added to Administration module
- Global Search feature added to visualization module
- Google Street and Google Hybrid Map services added to Visualization tool.
- Administration module added to update labels and manage users
- Tech Agency user created with rights of viewing proposals and provided to State Technical Agencies and Principal Technical Agencies

6.5 Review Meetings

To monitor the implementation of the projects by the State Governments, review meetings were conducted on hybrid mode. These review meetings were attended by officials of MoRD, NRIDA and the States.

6.6 Centralized Public Grievance Redressal and Monitoring System (CPGRAMS)

Centralized Public Grievance Redressal and Monitoring System (CPGRAMS), which is accessible through https://pgportal.gov.in is an important tool of Government to strengthen the two-way communication with citizens for effective and time-bound monitoring and implementation of programme & schemes at the ground level.

The status of grievances received on CPGRAMS Portal from Ministry of Rural Development is regularly reviewed at NRIDA and forwarded to concerned SRRDA for necessary action at their end. It is also ensured that the grievances are disposed in time bound manner without compromising on quality aspects. Citizens are welcome to use

this portal to express their concerns related to programme/ schemes and administrative activities.

At the start of the financial year 2021-22, 63 grievances were pending and during 2021-22, 1390 grievances were received through CPGRAMS portals. Out of a total of 1453 grievances, 1327 were disposed off till 31st March 2022 on the basis of action taken reports (ATRs) received from the States.

7. New Technology Initiatives

7.1 Vision Document on New Technology Initiatives & Guidelines-2022

In order to promote and disseminate large scale adoption of New/Green Technologies in rural roads in a much systematic manner, NRIDA has revised the existing guidelines and brought "Vision Document on New Technology Initiatives & Guidelines-2022". Under New Technology Vision 2022, the following guidelines have been made applicable under PMGSY for surface course of roads:

a. Compulsory use of waste plastic in at least 70% length out of the eligible proposed length involving Hot Mix process.

b. Universal use of Mechanized Surface Dressing (MSD) in T-1 to T-5 category of roads. From T-6 to T-8 category of roads, minimum 50% of length shall be taken under MSD. Surface Dressing can also be done with cold mix technology.

c. Cold Mix Technology shall be used in minimum 25% of the total eligible proposed length. The use of cold mix technology shall be prioritized in climatically suitable areas.

Also, following guidelines have been made applicable for base course, subbase course and subgrade:

a. At least 50% of length of the proposal shall be constructed utilizing new/green technologies/materials.

b. Each state shall promote two new innovations.

c. 100% proposed length under Cement Concrete shall be constructed using thin White topping (Paneled cement concrete) or Cell Filled Concrete. Only in exceptional cases Pavement Quality Concrete (PQC) shall be used.

d. In cases where pavement cost is high due to factors, such as non-availability of aggregate, leading to high transportation cost or unacceptable quality parameters of aggregate, FDR shall be preferred as methodology of construction with advanced equipment and machineries by using stabilization technology so as to attain cost economy, better compaction, quality and durability.

e. In areas near thermal power plants, fly ash shall be used in Cement Treated Base (CTB) and embankments in adequate quantity.

f. In areas near steel plants, slag shall be used in subbase course, base course and embankments in adequate quantity.

g. Construction and demolition (C&D) waste, duly processed, shall be used in sub-base/base course in at least 10% of the proposals.

h. Jute-Geo textile/Coir and similar such locally available materials shall be used for slope protection in hilly areas and other areas, where improvement of characteristics of sub-grade, embankments, shoulders etc. may be required.

7.2 Initiatives for New Technology

Following initiatives have also been taken up earlier by NRIDA to promote the use of new technologies:

i. After reviewing the progress of implementation of New Technologies and non-conventional materials in the construction of PMGSY roads, Ministry has set the annual targets of 10,000 km among the States during 2021-22. A road length 16036.34 km has been constructed using new technologies against the targeted length of 10,000 km (Annexure VII). These Technologies are environment friendly and either they do not need additional costs or require very little additional cost over and above sanctioned cost.

ii. States may send proposals for switching over from conventional methods to waste plastic /cold mix technology or any other new technologies for the already sanctioned proposals as per the guidelines of NTV 2022.

iii. States are requested to adopt soil stabilization techniques where CBR is below 3 and STAs ensure that appropriate soil stabilization techniques have been proposed as per the guidelines of NTV 2022.

iv. The States have been advised to take up pilot projects using any of the materials/ technologies accredited by IRC, in their annual proposals as per the guidelines of NTV 2022.

v. Some of the STAs have been requested to conduct life cycle Performance assessment of roads constructed using Waste Plastic /Cold Mix technology. IIT, Chennai has been identified as a Principal Agency to oversee the study with partner organizations. The study has been concluded and the preparation of guidelines based on the outcomes of the study has been prepared by the Experts and the same will be shared with the SRRDAs, PIUs and all the stake holders involved in PMGSY.

vi. In cases where pavement cost is high due to factors, such as non-availability of aggregates, leading to high transportation cost or unacceptable quality parameters of aggregate, FDR shall be preferred as methodology of construction with advanced equipment and machinery by using stabilization technology so as to attain cost economy, better compaction, quality and durability. Under FDR technology road length of 5,425 km has been sanctioned in the state of Uttar Pradesh. Also, in Jharkhand, Bihar, Odisha, Madhya Pradesh and Maharashtra road lengths of 1,371 km, 673 km, 71 km, 26 km and 200 km have been sanctioned respectively under this technology. Apart from this many states like West Bengal, Assam, Tripura and Nagaland are going to adopt this technology.

vii. On the basis of IRC:SP-72:2015 clause 7.3.3 Surface Dressing is both suitable and economical for low traffic volume conditions, as borne out by its popularity in several countries abroad. In all cases of Traffic categories T1 to T5, surface dressing should be preferred as Bituminous surfacing. States are requested to adopt Surface Dressing as Bituminous surfacing. In 2021-22 Road length sanctioned using Surface Dressing Technology is 6149 km.

7.3 Various New/ Green Technologies adopted in PMGSY

7.3.1 Soil Stabilization

Soil Stabilization is the biological, chemical or mechanical modification of soil engineering properties. Stabilization is the process of improving the engineering properties of the soil before construction. These properties include mechanical strength, permeability, compressibility, durability and plasticity. Stabilization is done to improve the strength of the soil thus improving the load bearing capacity and the overall performance of the in-situ soils. There are 3 main methods for soil stabilization: Mechanical Stabilization, Chemical Stabilization and Polymer Stabilization.

Mechanical stabilization consists of physical processes such as compacting or tamping with machineries including rollers or rammers. The mechanical soil stabilization is also achieved by blending (adding or removing) different soil particles so as to obtain effective distribution of soil particle. These techniques are usually used for sub-base and base courses.

Chemical stabilization of soils depends on the chemical reaction between the chemical/ stabilizer used and the soil particle composition. These include Cement, Lime, Magnesium Chloride, Bitumen Emulsion and Fly Ash among others.

Polymer soil stabilization refers to the addition of polymers to improve the physical & engineering properties of soils. Polymers tend to increase the strength of the soil through their interaction with clayey particles present in the soil. Many polymers currently used, tend to increase the water retention capability and the shear strength of the soil. Various chemicals/ additives are available for the soil stabilization process.

Till 31st March 2022 under PMGSY, 4575 km of road length has been constructed by stabilizing soil all over the country.

7.3.2 Full Depth Reclamation (FDR)

Full Depth Reclamation (FDR) involves recycling existing bituminous pavement and its underlying layers into a new base layer through a prescribed process which is pulverizing existing pavement (wearing course, base, and sub-base), blending with cementitious agent, water, corrective aggregates (if needed) as per mix design to produce a cementitious stabilized base. It is a sustainable technology for pavement rehabilitation, cost effective alternative, and thinner surface course. It increases the structural capacity of new pavement by providing a stronger and more consistent base. FDR with cement saves money and reduces the carbon footprint of road- way construction projects by reducing mining, hauling, and disposal of basic construction materials. IRC has prepared guidelines for Pavement Recycling/Reclamation, Full Depth Recycling (IRC:120).

Under FDR technology road length of 5,425 km has been sanctioned in the state of Uttar Pradesh. Also, in Jharkhand, Bihar, Odisha, Madhya Pradesh and Maharashtra road lengths of 1,371 km, 673 km, 71 km, 26 km and 200 km have been sanctioned respectively under this technology. Apart from this many states like West Bengal, Assam, Tripura and Nagaland are going to adopt this technology. Moreover, a detailed guideline has been issued by NRIDA regarding use of FDR for rehabilitation of low volume rural roads under PMGSY.

7.3.3 Mechanized Surfacing Dressing (MSD)

Mechanized Surface Dressing (MSD) is a simple, highly effective and inexpensive road surface treatment if adequate care is taken in the planning and execution of the work. The process is used throughout the world for surfacing both medium and light traffic roads, and also as a maintenance treatment for roads of all kinds.

Surface dressing comprises a thin film of binder, generally bitumen or tar, which is sprayed onto the road surface and then covered with a layer of stone chippings. The thin film of binder acts as a waterproofing seal preventing the entry of surface water into the road structure. The stone chippings protect this film of binder from damage by vehicle tyres, and form a durable, skid-resistant and dust-free wearing surface. In some circumstances the process may be repeated to provide double or triple layers of chippings. Surface dressing as surfacing course can be used in all the proposed roads with traffic category T8 and less instead of Open Graded Pre-mix carpet so as to phase out the adoption of open graded Pre-mix carpet which is more prone to ingress of rainwater to the granular pavement layers and the main cause of early formation of potholes and patches. Now it has been decided to adopt 100% surface dressing in all the proposed roads having traffic category T1 to T5 and 50% in all the roads having traffic category from T6 to T8. IRC has prepared the guidelines for the Standard Specifications and Code of Practice for Design and Construction of Surface Dressing (IRC: 110-2005). Moreover, a detailed guideline has been issued by NRIDA regarding use of Surface Dressing in PMGSY roads. Till 31st March 2022 under PMGSY, 949 km of road length has already been constructed using Surface dressing all over the country and much more length has been sanctioned, which is under implementation.

7.3.4 Whitetopping (Panelled Concrete)

Whitetopping is a Portland Cement Concrete (PCC) overlay that is constructed on top of an existing bituminous road. This overlay acts as a long-term alternative for the rehabilitation or structural strengthening of roads. The initial cost of the conventional concrete pavement is quite high because of higher thickness hence a new type of thinner concrete pavement with shorter panel size as per IRC: SP:76-2008 can be used in the construction of concrete pavements for village roads and city streets. Panels of size 0.5m x 0.5m to 1.5 m x 1.5 m with thickness from 100 mm to 150 mm are generally used. Whitetopping can provide better service ability, longer service life, lower life-cycle cost, and improved safety over the conventional concrete pavement. This technology can emerge as a good long-term solution to the perpetual maintenance problem of the roads with poor drainage. A detailed guideline has been issued by NRIDA regarding use of

Whitetopping in PMGSY roads.

Till 31st March 2022 under PMGSY 2513 km of road length has been constructed using Whitetopping/ Panelled Cement Concrete all over the country.

7.3.5 Cold Mix Technology

Cold mix technology uses cationic bitumen emulsion instead of viscosity grade bitumen for construction of black top layer. This technology has much promise, particularly in the areas of cold climate and high-altitude areas, inside forests and other environmentally sensitive locations, etc., since it does not require setting up of hot mix plant for production of bituminous mix. It can also be adopted for projects where in lead distance for hot mix from plant to site is large or has obstructions. However, after admixing bituminous emulsion with aggregates of specified gradation, the cold mix cannot be transported over long distances, and hence mixing should always be carried out adjacent to or very near (within few hundred metres) to the laying location. Several agencies are manufacturing emulsions with and without foreign collaborations. This is an environment friendly technology and is not equipment intensive. This technology has been used on rural roads in a few states during the past few years with good results. IRC has prepared guidelines for the Use of cold mix technology in construction and Maintenance of roads using bitumen emulsion (IRC SP: 100-2014).

Till 31st March 2022 under PMGSY 16,988 km of road length has been constructed using Cold Mix all over the country.

7.3.6 Waste Plastic in the Bituminous Layer

Waste plastic can be used as a modifier for bituminous hot mixes. Specified types of waste plastics (refer to IRC SP: 98) are available in plenty in urban areas. This needs to be processed to clean and bring waste plastic to proper gradation before mixing. This technology can be adopted all over India, to construct better quality bituminous wearing courses. It may be mentioned that during the past few years, several rural road projects have been undertaken with the use of plastic waste in bituminous works. Waste plastic is shredded & coated over aggregate & mixed with hot bitumen and the resulted mix is used for pavement construction. The advantages of Waste Plastic are that there is increased road strength (increased Marshall Stability Value), better resistance to water and water stagnation, increased binding and better bonding of the mix, increased load withstanding capacity and road life period is substantially increased. IRC has prepared guidelines for the Use of Waste Plastic in Hot Bituminous Mixes (Dry Process) in Wearing Courses (IRC SP: 98-2013).

Till 31st March 2022 under PMGSY 25,904 km of road length has been constructed using Waste Plastic and approximately 10362 MT of waste plastic has been utilized all over the country.

7.3.7 Cell-Filled Concrete

Cell-filled concrete pavement is the technology developed by IIT Kharagpur, which has proved to be a very promising solution for overloaded vehicles, inadequate drainage

facilities, and waterlogging problems. Cell-filled concrete pavement consists of formwork of plastic cells over the compacted subgrade/ sub-base, filled with concrete. The plastic cells act as both the form and reinforcement for the pavement. The plastic cells are made from reclaimed high-density polyethylene (HDPE) sheets of thickness 0.22 mm to about 0.25 mm. The strips can be heat-welded or stitched to form cells. Conventional pavement concrete with 28-day strength of 30 MPa with a slump of about 30 to 50 mm can fill up the cell. The Roller Compacted Concrete (RCC), as specified in clause 1502 of Specifications for Rural Roads, can also be used for filling up the plastic cells and compacted with a roller. The structural design of the pavement can be done by considering the rutting performance criteria used in the IRC guidelines for flexible pavements (IRC:37-2018) with an appropriate reliability level. An effective modulus of 2000 MPa is recommended for the cell-filled concrete layer. This technology provides thinner concrete pavement by reducing the joints spacing to as small as 150 mm, thereby creating blocks of small size. Thus, the expansion or contraction joints are not required, and hence maintenance of joints is eliminated. Moreover, this technology uses recycled plastic and consumption of aggregates is reduced to almost 50% when compared to conventional CC pavements; leading to considerable savings in the cost of construction when compared to conventional CC pavement.

Till 31st March 2022 under PMGSY 2,218 km of road length has been constructed using Cell-filled concrete all over the country.

7.3.8 Fly Ash

Fly ash is a fine residue of coal combustion in the Thermal Power Plants. Fly ash is an effective agent for chemical and/or mechanical stabilization of soils which enhances the soil density, water content, plasticity, and shear strength of soil. Fly ash eliminates the need for expensive borrow materials, expedites construction by improving excessively wet or unstable subgrade. By improving subgrade conditions, it promotes cost savings through reduction in the required pavement thickness and hence eliminates the need for more expensive natural aggregates in the pavement cross-section. Fly ash can also be used as cost-effective mineral filler in hot mix asphalt (HMA) paving applications. Where available locally, fly ash may cost less than other mineral fillers. Also, due to the lower specific gravity of fly ash, similar performance is obtained using less material by weight, further reducing the material cost of HMA. Mineral fillers increase the stiffness of the asphalt mortar matrix, improving the rutting resistance of pavements. Mineral fillers also help reduce the amount of asphalt drain down in the mix during construction, which improves durability of the mix by maintaining the amount of asphalt initially used in the mix. IRC has prepared the guidelines for the Stabilization of soil and Granular Material using Cement, Lime, Fly Ash (IRC SP: 89-2010).

7.3.9 Slag

Steel slag, a by-product of steel making, is produced during the separation of the molten steel from impurities in steel-making furnaces. The slag occurs as a molten liquid melt and is a complex solution of silicates and oxides that solidifies upon cooling. Slag is a

valuable raw material for preparation of macadam materials and mineral binders serving as a base for asphalt concrete mixtures and manufacturing of cement emulsions, which are widely used in road paving. Slag has a greater PSV (Polished Stone Value): i.e., greater resistance to wear. This is the result of its mineral composition. The consequences: less wear and longer road lifetimes. Roads constructed using Slag demonstrates reduced rutting.

Moreover, Slag has micropores and therefore, it retains its adhesiveness with wear. In contrast, natural rock becomes smooth with wear— its surface becomes polished and slippery. As a result, tires can grip better on surfaces constructed using Slag, and this is particularly important on highways and on curves. Slag is harder and internally bound. Natural gravel does not have the same stability and load bearing capacity. As Slag is harder and more compact than natural rock, roads last longer. And as there is less wear, hence helps in reducing the carbon foot print. IRC has prepared the guidelines for use of Iron, Steel and Copper Slag in Construction of Rural Roads (IRC SP: 121-2018).

7.3.10 Warm Mix Technology

Warm Mix technologies allow production of bituminous mixes at a temperature 30-40° C lower than the hot mix using the same plant. These technologies reduce the viscosity of the bitumen with the use of additives (water-based, organic, chemical, or hybrids), so that aggregates can be coated at lower temperatures. Reducing the viscosity also makes the mixture easier to manipulate and compact at the lower temperature. Fuel consumption in warm-mix manufacturing is typically reduced by 20% as compared to hot-mix. In paving projects, the greater the temperature difference between the mix and the outside temperature, the faster the cooling of the mixture. Relative to hot-mix, warm-mix cools more slowly allowing it to be successfully placed at lower temperatures. Since faster cooling affects durability, cold ambient temperatures adversely affect hot-mix. As a result, warm mix extends the paving period and season. It also makes night paving more feasible. Additionally, it saves time in production as well as in surfacing roads.

7.3.11 Coir Geosynthetics

Coir Geo textiles (CGT), a permeable fabric, natural, strong, highly durable, resistant to rots, moulds and moisture, free from any microbial attack, has finally been accepted as a good material for rural road construction. Coir Geotextile is produced using coir, which is made from the husk of a coconut. Among all the natural fibres available, coir fibre possesses high strength and low rate of degradation due to its high lignin content. It has been observed that CGT, when applied at the interface of sub-grade and subbase, enhances the load bearing capacity of subgrade soil by performing the concurrent functions of separation, filtration, drainage and initial reinforcement within one or two season cycles. Use of CGT in road construction will intensify the utilization of the country's resource within its own geographical area and environment. Because it is a naturally occurring material, it can help save material for pavement construction while lowering the overall cost. The Indian coir business is a rural agro-based industry that employs over 7 lakh people in the country's key coconut-producing states. People in rural parts of coconut-producing states such as Kerala, Tamil Nadu, Karnataka, Andhra Pradesh, Telangana,

Odisha, and others benefit from utilization of coir in road construction. IS 15871-2009 provides the guidelines for the Use of geo-textiles, jute and coir technology in road pavements and associated works.

Till 31st March 2022 under PMGSY 1,061 km of road length has been constructed using Coir Geotextile all over the country.

7.3.12 Bio-engineering Techniques

Bio-engineering measures can be adopted in hilly and mountainous terrain as a low-cost technique to prevent erosion of hill slope and to overcome the problem of shallow landslide. However, if the slip circle of landslide is deep seated or landslide is occurring due to inherent geological reasons, bio-engineering measures alone cannot be used as a remedy. In such cases, bio-engineering techniques can be a part of a package of engineering measures required against landslide hazard. Bio- engineering measures can be adopted to prevent erosion of bridge approach embankment side slopes if the height of embankment is more (above 3 m or so).

7.3.13 Cement Grouted Bituminous Macadam (CGBM)

CGBM is based on the concept of preparing a coarse aggregate skeleton structure which is then filled with cementitious grout material. CGBM consists of an open graded bituminous mix skeleton with 25-35% air voids such as bituminous macadam. Cementitious grout having sufficient fluidity flows under gravity to fill these voids. It enjoys the advantageous property of bituminous and concrete pavement. CGBM surfacing will be useful for pavements subjected to moisture damages and experiencing higher contact stresses.

7.3.14 Gabions

A gabion is a cage, or box filled with rocks, concrete, or sometimes sand and soil to make earth retaining structures. Gabions can be used for construction of toe walls/breast walls/ retaining walls in place of masonry structure.

7.3.15 Industrial Wastes

Many waste materials are available in different parts of the country such as Fly ash, Construction and Demolition (C&D) waste, Marble dust and Slurry, Mining and Quarrying Waste, Blast Furnace Slag, Steel Slag, Copper Slag, Zinc Slag, Rice Husk Ash, Phosphogypsum, Foundry Sand, etc. Use of such materials has already been demonstrated to be useful in various layers of road embankment and pavement. Utilization of such materials is encouraged for converting waste to wealth and reducing environmental impact. Using industrial wastes depends on lead distance between the project and the concerned industry. Other factor would be cost of procurement (if any) for the waste material since some of these materials are sold by industries as by products. Coal based thermal power stations and heavy industries are well distributed in different states of India, and hence there is ample scope for using such industrial wastes. Mining and quarrying wastes often contain considerable amount of good quality rocks. But generally mining and quarrying wastes are heterogeneous in nature, which brings in uncertainty about their strength properties. Inspection and identification of borrow locations from

where good quality rocky mining wastes, having adequate strength properties can be procured, would help their usage in pavement layers. Otherwise, they can be used for sub-grade improvement, stabilized pavement layer construction or for embankment. It is further necessary to ensure that no harmful leachates are released subsequent to use of any industrial waste in road works. Environmental acceptability test results can be obtained from the respective industries and/ or from reputed testing laboratories or competent STAs/ PTAs. As with any other locally available materials, laboratory investigations are needed to devise appropriate methodology and pavement layer wherein industrial wastes can be used.

7.3.16 Gravel Roads

Good quality gravel is available in different parts of the country. This gravel should be used as potential material for construction of very low volume rural roads. A few gravel roads can also be constructed as gravel sealed roads, where sealing can be done using bitumen emulsions or thin bituminous surfacing such as Surface Dressing. Gravel becomes the primary choice for construction of rural roads when total equivalent single axle load repetitions for the design life are less than 0.1 million standard axles (MSA). Gravel roads are not considered to be appropriate choice for wearing course when average daily traffic (ADT) exceeds 200 vehicles per day and also in hilly/mountainous terrain. In such locations having design traffic less than 0.1 MSA, surface dressing can be adopted as a wearing course over gravel base. Additionally, for forest areas, and for providing connectivity to very small habitations, gravel roads, with or without thin bituminous sealing would be a suitable option. IRC SP:72 and IRC SP:77 provide details of gravel road design and construction. Though no performance data on sealing of gravel roads is available in India, many other countries such as South Africa and Australia are already using such gravel sealed roads on a large scale. The state wise achievements on New Technology during the year 2021-22 is given at Annexure VIII. Technology wise cumulative sanction and completion till 31st March 2022 is given as under:

Technology-wise Road Length sanctioned and completed till 31st March 2022

Sl. No.	Technology	Length Sanctioned (in Km)	Length Completed (in Km)
1	Waste Plastic	40130	25937
2	Cold Mix	25977	16957
3	Panelled CC	4831	2513
4	Jute/ Coir/ Geotextile	1539	1061
5	Terrazyme	1654	993
6	Nanotechnology	7776	3580
7	RCCP	1055	983
8	Others	29968	17255
	Total	**112930**	**69279**

8. Research & Development

8.1 Research & Development Initiatives

8.1.1 The basic objective of the R&D initiative is to inculcate the culture of use of cost-effective Green/ New Technologies and use of local marginal materials in construction of rural roads. NRIDA has been playing a critical role in defining excellence in construction of roads in rural sector and setting up benchmark by using various types of new environmental friendly materials. Performance evaluation of these roads are carried out from various reputed institutes like IITs, CRRI, PTA and STAs. New R&D project proposals are submitted by PTAs, STAs or any Govt. aided Research Institute/ Engineering/ Science/ Management Institutions of the country having credentials of established research facilities and manpower to deliver time bound research projects. These project proposals are being reviewed and selected by an Expert Group which is having the overall authority to finalize the selection of the research proposal and finally, disseminate the outcome of R&D projects through its publications, guidelines and advisories for the benefit of field engineers, researchers, engineering professionals and the society.

8.1.2 The Highway Research Board of the IRC undertook an exercise to identify major thrust areas in the highway sector covering road pavements, bridges, geotechnical engineering, traffic engineering and safety related schemes. Huge investments are being made for rural roads under the PMGSY and other state level programmes and schemes. Some of the thrust areas considered useful and relevant for rural roads as noted below need special attention:

- Promoting recycling of pavements for up-gradation/ rehabilitation projects – evolving guidelines and warrants for recycling.
- Evolving environmentally optimized and climate resilient design for rural roads
- Evolving pavement performance prediction models for determining rate of deterioration of pavements with time, traffic and weather.
- Scope for composite construction technology in rural roads.
- Bridge construction technologies to achieve faster construction such as pre-casting technologies, steel super structures etc. Also evolve standard designs for bridges on rural roads, along with standard drawings.
- Pre-cast technologies for small CD structures (culverts) and similarly pre-cast side drain system, along with standard drawings.
- Evolving cost-effective cross drainage structure designs by adopting precast components.
- • Evolving low-cost erosion control and drainage measures.
- Evolving bio-engineering measures for improving slope stability in hilly areas.
- Evolving simple models for Asset Management System of rural roads.
- Evolving simple methods/ technologies for maintenance of rural roads.

- Practical measures for enhancing safety on rural roads. Evolve typical design and layout of intersections.

8.2 Research Projects and Outcome

8.2.1 Performance Assessment of Rural Roads constructed with Waste Plastic and Cold Bituminous mixes

NRIDA had undertaken the Performance Assessment of Rural Roads Constructed with Waste Plastic and Cold Bituminous Mixes. NRIDA had identified IIT, Madras to be the Principal Agency to design and oversee the study with partner organizations in different regions of Pan India. Accordingly, RASTA Bangalore, IIT Patna, IIT (BHU) Varanasi, NIT Trichy, NIT Kurukshetra, MNIT Jaipur, SGSITS Indore, IIT Bhubaneswar, IIT Roorkee and IIT Guwahati esteemed institutions of repute who are actively involved in pavement research, across India, were assigned the project for as investigating agencies for the study. Various road stretches were selected by all the partner institutes in their respective states w.r.t. age, traffic, climatic conditions, topography, etc., It was also mandated to select a control section using conventional construction, having the same conditions for comparison.

The project proposal was sanctioned in September 2019 at a cost of Rs.291.20 lakhs. The project started on 15th September 2019 and duration of project was 24 months. However, the duration of the project has been extended till 31st December 2021 on the request of Principal Agency due to COVID-19 pandemic.

8.**2.2** Findings from the Performance Assessment of Rural Roads constructed with Waste Plastic

1. The following is the summary of the findings based on the performance data pooled for a period of two years from all the participating institutions:
2. The distresses such as raveling, cracking, potholes were observed to be less in waste plastic roads compared to the conventional roads indicating that waste plastic roads have better surface condition than conventional roads. This was also evident from the PCI value which was either in the same rating scale or higher rating scale compared to conventional pavements.
3. The surface unevenness measured in terms of IRI was mostly less for waste plastic roads compared to conventional roads for traffic up to 100 CVPD.
4. From the multilinear regression models developed, Cracking, Raveling, potholes, and patchwork proved to be predominantly significant in influencing the pavement performance in most zones, however depression and edge break also was seen significant in south zone.
5. The remaining service life estimated to reach the threshold PCI value of 40 was found to extend by 1 to 1.5 years for waste plastic road, which meant that the maintenance of the waste plastic roads can be extended / delayed by one year on an average. This aspect was further considered for estimating the Life cycle cost analysis for waste plastic roads.
6. The life cycle cost assessment (LCCA) carried out for waste plastic road and

conventional road showed a decrease in the overall life cycle cost of waste plastic road by 4.3 % compared to that of conventional road, which is marginally less and hence may be considered in par with conventional roads. However, use of waste plastic in roads should be encouraged to safeguard mankind and the ecosystem from the detrimental effects of dumping waste plastics in the surrounding environment.

7. Total Embodied Energy (MJ/kg) and Embodied Carbon (kg CO2/kg) for waste plastic road is seen to be marginally more (up to 2%) than that of conventional road. However, the intangible benefits of using waste plastics in roads is way higher which otherwise is detrimental to the ecosystem when dumped or disposed in the surroundings. Hence the overall environmental benefits should be weighed considering these intangible benefits of using waste plastics in roads which is more significant than the total embodied energy and the embodied carbon.

   Based on the overall analysis of the Global data and the conclusions drawn, it can thus be inferred that waste plastic road have as an edge over conventional bituminous surfacing, based on its enhanced performance and less environmental effects compared to the conventional pavements. Hence use of waste plastics in surface layer may be encouraged for rural roads.

8.2.3 Findings from the Performance Assessment of Rural Roads Constructed with Cold Bituminous Mixes

The following is the summary of the findings based on the performance data pooled for a period of two years from all the participating institutions:

i. The performance of cold and hot bituminous mix surfaced pavements is comparable.

ii. The roughness of the pavement surface was found to be dependent on the amount of rainfall. The roughness values were observed to be higher on roads constructed in high rainfall areas.

iii. Cold bituminous mix surfaced pavements undergo slower rate of deterioration when compared to the hot bituminous mix surfaced pavements.

iv. The life cycle cost assessment (LCCA) showed that the PM10 emission was 33% lower with the use of cold mix compared to the hot mix.

v. In addition, 7% reduction in energy consumption was noticed with the use of cold mix compared to hot mix. This indicates that the cold mix can significantly reduce the carbon footprint associated with the road construction activities.

vi. The net present value (NPV) of cold mix surfaced roads was found to be lower when compared to the roads constructed using hot mix technology during the life cycle period.

Overall considering the relative performance, the cost of operation, productivity, safety and environmental aspects, the study recommends that the cold mix technology could be preferred over hot-mix technology for low volume rural roads.

8.3 In-progress R & D Projects

11 research proposals with a total cost of Rs. 642.686 Lakhs have been sanctioned during

FY 2021-22 and all these projects are progressing smoothly. The details are as under:

1.	**Title:**	Development of Accelerated Pavement Test facility to evaluate Pavements of Village roads (APTF)
	Name of Institute:	IIT Kharagpur
	Sanctioned Date	11th October 2021
	Duration:	3 years
	Total Cost of Proposal:	Rs.260.28 Lakhs
	Amount Released till Date:	Rs.104.11 Lakhs (40% of total cost)
	Outcome of the study:	Evaluate different emerging pavement systems and new paving mixtures that can be a potential low-cost alternative for Low Volume Roads.

2.	**Title:**	Evaluation and Performance Assessment of Rural Roads Constructed with Panelled Concrete
	Name of Institute:	RCTRC Odisha
	Sanctioned Date	21st August 2021
	Duration:	2 years
	Total Cost of Proposal:	Rs.14.5 Lakhs
	Amount Released till Date:	Rs.5.8 Lakhs (40% of total cost)
	Outcome of the study:	To work and come out with clear inference on the performance of road on the choice of this technology.

3.	**Title:**	Comparative analysis of use of additives Kiln Dust and Rice Husk Ash to improve performance of earthen shoulders
	Name of Institute:	RCTRC Assam
	Sanctioned Date	21st August 2021
	Duration:	2 years
	Total Cost of Proposal:	Rs.16.84 Lakhs
	Amount Released till Date:	Rs.6.74 Lakhs (40% of total cost)
	Outcome of the study:	To explore the locally available materials (by-products and waste) that can be added to the existing soil to increase its strength and durability characteristics.

4.	**Title:**	Feasibility of plastic paver blocks for rural roads
	Name of Institute:	RCTRC Assam
	Sanctioned Date	21st August 2021
	Duration:	1 years
	Total Cost of Proposal:	Rs.20.11 Lakhs
	Amount Released till Date:	Rs.8.044 Lakhs (40% of total cost)
	Outcome of the study:	Objective of the research is to make use of the waste plastic as well as the sediments and convert them to good quality paver blocks.

5.	**Title:**	Proactive Safety Evaluation of Rural Roads: A Surrogate Safety Assessment
	Name of Institute:	MPRRA and MANIT Bhopal
	Sanctioned Date	15th November 2021
	Duration:	1.5 years
	Total Cost of Proposal:	Rs.23.28 Lakhs
	Amount Released till Date:	Rs.9.31 Lakhs (40% of total cost)
	Outcome of the study:	Development of a scientific methodology to evaluate the road safety indices for measuring safety performance of rural road segments. Further the safety assessment at intersections (comprising of minor rural road and major road) using traffic conflict techniques as surrogate safety measures.

6.	**Title:**	A1-enabled drone-based remote health assessment of PMGSY roads
	Name of Institute:	BITS, Pilani
	Sanctioned Date	15th November 2021
	Duration:	2 years
	Total Cost of Proposal:	Rs.17.59 Lakhs
	Amount Released till Date:	Rs.7.04 Lakhs (40% of total cost)
	Outcome of the study:	Develop an open-source high-resolution PMGSY road network dataset repository (imagery) that can fuel innovations in various phases of PMGSY implementation.

7.	**Title:**	Exploration of Psychological Benefits to Indian Rural Women due to Pradhan Mantri Gramin Sadak Yojana
	Name of Institute:	MANIT, Bhopal
	Sanctioned Date	15th November 2021
	Duration:	2 years
	Total Cost of Proposal:	Rs.11.40 Lakhs
	Amount Released till Date:	Rs.4.56 Lakhs (40% of total cost)
	Outcome of the study:	Assessment of the changes in quality of life brought by PMGSY roads in rural women's lives as individuals and in their family life. Development of strategies for psychological wellness and physical social & mental empowerment of rural women.

8.	**Title:**	Durability study of GGBS based cement free concrete pavements for rural areas.
	Name of Institute:	UIT RGPV, Bhopal
	Sanctioned Date	11th March 2022
	Duration:	1 year
	Total Cost of Proposal:	Rs.15.60 Lakhs
	Amount Released till Date:	Rs.6.24 Lakhs (40% of total cost)
	Outcome of the study:	Mix proportioning of GGBS based cement free concrete for various grades (M40 and M45) using different types of activators with different GGBS sources.

9.	**Title:**	Performance Evaluation of Cement Concrete Pavements in Rural Roads
	Name of Institute:	IIT, Bhubaneswar and 8 other institutes
	Sanctioned Date	15th March 2022
	Duration:	1 year
	Total Cost of Proposal:	Rs.208.42 Lakhs
	Amount Released till Date:	Rs.83.37 Lakhs (40% of total cost)
	Outcome of the study:	Remaining service life estimation & Establishing relationship between the performance and causative factors

10.	**Title:**	Evaluation of Bridge Approach Settlement Mitigation schemes through field application
	Name of Institute:	IIT, Bhubaneswar
	Sanctioned Date	11th March 2022
	Duration:	2 years
	Total Cost of Proposal:	Rs.37.48 Lakhs
	Amount Released till Date:	Rs.14.99 Lakhs (40% of total cost)
	Outcome of the study:	Numerical investigation to find short-term and long-term settlement performance of proposed schemes with parametric study to finalize exact dimension for field application. Analysis of the performance data that may lead to the preparation of guidelines for bridge approach construction schemes and their implementation strategy to minimize bumps.

11.	**Title:**	Assessing the Suitability of Micro surfacing as Periodic Maintenance for Rural Roads over Bituminous and Cement Concrete Surface
	Name of Institute:	CRRI, New Delhi
	Sanctioned Date	30th March 2022
	Duration:	2 years
	Total Cost of Proposal:	Rs.17.20 Lakhs
	Amount Released till Date:	Rs.6.88 Lakhs (40% of total cost)
	Outcome of the study:	Laboratory and field evaluation of the construction of microsurfacing over different kinds of pavement (cement concrete/bituminous) to get a comparative result in terms of the performance of layers.

12.	**Title:**	Development of Specifications for Use of Waste Plastic in Asphalt Mixtures: a Major Step towards Building Sustainable Road Infrastructure
	Name of Institute:	IIT, Roorkee
	Sanctioned Date	05th July 2022
	Duration:	1.5 years
	Total Cost of Proposal:	Rs.55.088 Lakhs
	Amount Released till Date:	Rs.22.04 Lakhs (40% of total cost)
	Outcome of the study:	To develop standard manual for use of waste plastic based on short- and long- term performance of asphalt mixtures.

13.	**Title:**	Performance Evaluation of Roads Constructed using Cell Filled Concrete, Panelled Cement Concrete and Roller Compacted Cement Concrete
	Name of Institute:	IIT Bhubaneswar, IIT Guwahati, IIEST Shibpur and RASTA Bangalore
	Sanctioned Date	18th November 2022
	Duration:	2 years
	Total Cost of Proposal:	Rs.128.86 Lakhs
	Amount Released till Date:	Nil
	Outcome of the study:	To develop the pavement performance model and to estimate the life cycle costs for CFCP using stochastic and machine learning techniques.

8.4 New R & D Projects

Apart from the above mentioned in-progress proposals, following proposals were also received at NRIDA and are under various stages of approval/ scrutiny.

Sl. No.	Title	Institute	Project cost Rs. in Lakhs
1.	Evaluation of thin bituminous pavement surfaces appropriate for Low Volume Road (LVR) application	College of Engineering Trivandrum	17.11
2	Utilization of River Bed Materials for Construction of LVR	NIT Patna	37.95
3.	Performance Evaluation of Fly Ash–Cement Stabilized Coal Mine Overburden as a Potential Sub-base and Base Course Material in Flexible Pavement Systems	NIT Durgapur	18.92
4.	Strategies and Guidelines for slope cutting for village roads in Hilly region	IIT Mandi	16.78
5.	Material Resource Mapping for Sustainable PMGSY Road Network	IIT Guwahati	33.80
6.	Development of Guidelines for Dense Graded Bituminous mix as Thin Surface Course Layer for Low Volume Roads	NIT Warangal	28.20
7.	Development of Warrants for Full Depth Reclamation Projects	NIT Warangal & IIT (BHU)	27.00
8.	Performance Evaluation of Geosynthetics/ Geotextiles in Low Volume Rural Roads - Field and Laboratory Performance Evaluation	NIT Warangal	15.00
9.	Development of a Methodology to substitute conventional aggregate by low MnO slag in rural road construction	VNIT Nagpur	24.70
10.	Implementation of sustainable Pervious All-Road class All-weather Multilayered paver (PARAM pave) blocks	IIT Tirupati	115.99
11.	Novel Cost-Effective Technique to Stabilize Black Cotton Soils in Pavement Subgrade	VNIT Nagpur	25.20
12.	Automatic Traffic Counter Using Deep Learning Algorithm and CCTV Camera	NIT Durgapur	17.60
13.	Low-cost landslide mitigation strategies for village roads through Bio-Engineering - Scheme to Field Demonstration	IIT Mandi	50.93

Sl. No.	Title	Institute	Project cost Rs. in Lakhs
14.	Assessment of Lignin Modified Asphalt for Construction of Rural Roads	MANIT Bhopal	57.20
15.	Evaluation of Cement Stabilized Base Mixes Using Steel and Copper Slag as Coarse and Fine aggregates	NIT Warangal	37.44
16.	Laboratory Performance Evaluation of Cement and Lime Fly Ash Stabilized Recycled Concrete Aggregate for Low Volume Rural Roads	NIT Warangal	32.91
17.	Impact of PMGSY Road Network on Society of Rural Area in India	Samrat Ashok Technological Institute, MP	24.95
18.	Strategic Evaluation of Rural Road Safety: Towards Develop a Safety Index	NIT Warangal	16.61
19.	Traffic Volume Estimation Based on Socioeconomic and Land-Use Characteristics	NIT Warangal	24.02
Total			**622.31**

8.5 Performance Evaluation of New Technologies

As per the guidelines of New Technology Vision 2022, it has been decided to get the proposals directly from the PTAs and STAs or other academic/ research institutes having adequate manpower, expertise, and laboratory facilities for evaluating the performance of roads constructed using new materials/ technologies under PMGSY. The following proposals are received from various institutes are as under:

Sl. No.	Title	Institute	Project cost Rs. in Lakhs
1.	Performance Evaluation of Roads Constructed using Full Depth Reclamation (FDR) Technology in the State of Uttar Pradesh	IIT Roorkee	127.12
		CRRI New Delhi	127.12
		IIT (BHU) Varanasi	127.12
2.	Performance Evaluation of Roads Constructed using Nanotechnology	IIT Guwahati	70.83
		SGSIET Indore	31.94
3.	Performance Evaluation of Roads Constructed using Terrazyme Technology	IIT Bhubaneswar	50.17
		NIT Raipur	32.89
		BIT Mesra	53.73
		RASTA Bangalore	37.84

Sl. No.	Title	Institute	Project cost Rs. in Lakhs
4.	Performance Evaluation of Roads Constructed using RBI-81 Technology	RASTA Bangalore	40.74
		NIT Trichy	37.79
5.	Performance Evaluation of Roads Constructed using Steel Slag	BIT Mesra	87.18
6.	Performance Evaluation of Roads Constructed using Jute geotextile.	RASTA Bangalore	33.40
Total			**857.60**

9. Training and Human Resource Development (HRD)

9.1 Training of State Level Officials involved in implementation of PMGSY

The training of state officials involved in the implementation of PMGSY is a priority area for the NRIDA. The training support to the states covers various areas of program implementation including guidelines, planning, procurement, design and construction of pavements & bridges, New Technologies (Full Depth Reclamation, Surface Dressing, Thin White topping - Cell Filled Concrete and Panelled Cement Concrete) and Road Safety Level-I & II. These programs are conducted in online mode with the help of National and Regional level institutes such as Indian Academy of Highway Engineers (IAHE) - Noida, Central Road Research Institute (CRRI) - New Delhi, IIT BHU, Varanasi, Engineering Staff College of India (ESCI) – Hyderabad, MANIT Bhopal etc. NRIDA also provides fund support to states to conduct programs on approved topics in state level institutes. A total of 1127 officers have been trained under these training Programs. The details are given below:

Details of Training Conducted during FY-2021-22

Sl. No	Institute Name	Name of Training	Officers Trained
1.	CRRI New Delhi	New Technology Initiatives in Rural Roads including use of Marginal Materials	91
		Construction and Quality control of Flexible & Rigid Pavements	97
		Design of Flexible and Rigid Pavements.	56
2	ESCI Hyderabad	Basic Program on Planning, Design and Construction of Minor Bridges and Culverts	80
		Advanced Programme - Planning, Design & Construction of Long Span Bridges	82

Sl. No	Institute Name	Name of Training	Officers Trained
3	IAHE Noida	New Technology initiatives in Rural Roads including use of marginal materials	41
		Construction and Quality Control of Flexible and Rigid Pavements.	46
		Training for Newly inducted officers in PMGSY	46
4	IIT (BHU) Varanasi	Construction and Quality control of Flexible & Rigid Pavements	49
		Safety of Rural Roads (Level-I)	56
		New Technology Initiatives in Rural Roads including use of Marginal Materials	56
		Quality Control, Material Testing Procedures and Lab Practices	53
5	MANIT Bhopal	Road Safety of Rural Roads (Level-1)	45
6	NIT Warangal	New Technology Initiatives in Rural Roads and Use of Marginal Materials	92
		Construction and Quality control of Flexible & Rigid Pavements	50
		Planning, Design and Construction of PMGSY Roads	65
7	VNIT Nagpur	Quality Control, Material Testing Procedures and Lab Practices	58
		Design of Flexible and Rigid Pavements	64
Total			**1127**

NRIDA has also organized the Webinar on New Technologies such as Mechanized Surface Dressing, Panelled Cement Concrete, preparation of DPRs and Quality related issues for PIUs/SQMs/STA etc. During the financial year 2021-22, a total number of 790 officers have been trained under these webinar programmes. Details of Webinar conducted are given below:

Sl. No.	Date	Topic	No. of Participants Trained
1.	09.04.2021	Webinar on Mechanized Surface dressing	478
2.	15.04.2021	Webinar on Panel Cement Concrete	180
3.	22.06.2021	Webinar on preparation of DPRs and Quality related issues for PIUs/SQMs/STA - J&K, Ladakh, Himachal Pradesh and Uttarakhand	132
Total			**790**

9.2 On boarding to iGOT-Karmayogi Platform

The National Programme for Civil Services Capacity Building (NPCSCB)- Mission Karmayogi aims to create a competent civil service rooted in Indian ethos, with a shared understanding of India's priorities, working in harmonization for effective and efficient public service delivery. The Mission seeks to keep the civil service at the center of all change, empowering them to deliver in challenging environments. The focus of NPCSCB is also on enhancing the government-citizen interaction, with officials becoming enablers for citizens and business, with development of Behavioral-functional-domain competencies leading to ease of living and ease of doing business.

Karmayogi Bharat, the SPV constituted under Mission Karmayogi has set up the iGOT Karmayogi Portal which now has over 1.6 lakh users from various Government Departments. National Rural Infrastructure Development Agency under Ministry of Rural Development has published following 6 courses on the iGOT portal:

1. Pavement Design, Construction and Maintenance.
2. Design, Construction and Maintenance of Minor Bridges and Culverts including specific requirements in hill roads.
3. Preparation of Detailed Project Report (DPR).
4. Procurement of works and services including Standard Bid Documents & contract management.
5. GIS Module.
6. Advanced Programme - Planning, Design and Construction of Long Span Bridges.

9.3 International Conference on New Technologies and Innovations in Rural Roads

With an objective to deliberate on ways to strengthen and adopt more emerging technologies, new materials, and adoption of established technologies, though beneficial but yet not prevalent in the Indian context, an International Conference on New Technologies and Innovations in Rural Roads; along with technical exhibition from 24th to 26th May 2022 at Pragati Maidan, New Delhi, India. The conference was through hybrid mode (both online and offline). This conference has proved useful to engineers, field implementers, construction agencies, academicians, administrators, consultants and other stakeholders engaged in the subject of low volume roads. More than 600 participants from Technical Institutions, Research Institutions, Government Officials, Road Construction Agencies, Consultants, Technology Experts, Equipment Manufacturers along with NQMs and SQMs attended the conference physically, and around 2,500 participants attended virtually. Participants from 15 countries physically attended the conference and presentations on 45 topics were made by the experts.

This conference was organized by National Rural Infrastructure Development Agency (NRIDA), Ministry of Rural Development, Government of India, New Delhi in association with Indian Roads Congress and The World Bank. Leading technical institutions such as IIT-Chennai, IIT-Kharagpur, IIT-Bhubaneswar, IIT-Tirupati, IIT-BHU Varanasi, IIT-Hyderabad, IIT-Roorkee, NIT-Warangal, SVNIT-Surat and CSIR-CRRI New Delhi were

knowledge partners.

Conference Themes

a. **Resilient & Sustainable Rural Roads Infrastructure - Lowering the Car bon Footprint**

i. Covering all issues related to resource efficiency - new materials (marginal/ innovative/ alternate) and technologies – their pilot use, mainstreaming, challenges and promoting green growth.

ii. Technologies and practices to enhance resilience of rural roads and bridges including disaster risk management across life-cycle management Challenges & solutions of design & construction of rural roads & bridges in hilly terrain/ cyclone prone/ snowbound areas including cost-effectiveness.

iii. Design of sustainable Rural Roads (Low Volume Roads) - Low-cost surfacing for Rural Roads.

b. **Transforming Rural Economy through Access – Enhancing Integration & Inclusivity**

i. Enhancing efficiency by linking roads to agriculture, commerce and services

ii. Rural Transport Services

iii. Community participation in selection, route choice, quality monitoring of rural roads, formation of micro-enterprises, role of women, creation of jobs and alignment with rural employment programs

Management and Maintenance of Rural Roads –Effective Governance Framework

i. Asset Management of Low Volume Rural Roads Innovations in Maintenance & Rehabilitation Strategies for Rural Roads

ii. Data Driven Planning & Implementation – Use of eMARG, GIS, OMMAS etc.

iii. International Best Practices in Management of Rural Roads

Technical Exhibition

The conference provided a platform to showcase the latest technologies, new materials, equipment, road construction machinery, road safety materials, automatic traffic counters cum classifiers and quality control equipment related to rural roads construction, maintenance and asset management. A total of 60 stalls were established for showcasing the latest technologies in the road sectors.

10. External Aided Project

10.1 Assistance from Asian Development Bank (ADB):

ADB pro- vided the assistance to PMGSY program in the 5 States (Assam, Chhattisgarh, Madhya Pradesh, Odisha and West Bengal) for Rural Roads Sector-I Projects, Rural Roads Sector- II Projects and Rural Connectivity Investment Programme (RCIP) through loans of USD 400 Million, USD 750 Million and USD 800 Million respectively. The ADB assistance under ongoing Second Rural Connectivity Investment Programme (SRCIP)

was USD 500 Million.

Rural Roads Sector I Investment Program (RRSIP) and Rural Roads Sector II Investment Program (RRSIP- II) have been completed in June 2009 and June 2014 respectively by connecting 9600 habitations through 22,555.70 km road length in the States of Assam, Chhattisgarh, Madhya Pradesh, Odisha and West Bengal.

10.2 Rural Connectivity Investment Program (RCIP)

Multi-tranche Financing Facility (MFF) for USD 800 Million was signed on 17th May 2012 by ADB, DEA, MoRD and States. ADB financial support for the RCIP was extended through MFF. RCIP was completed on 31st Dec 2019 connecting 6382 habitations through the construction of 13021.156 km roads in the States of Assam, Chhattisgarh, Madhya Pradesh, Odisha and West Bengal. Financing Plan of the Investment Program is given below:

Sl. No	Source	Amount
1.	Asian Development Bank	USD 800 Million
2.	Government of India and State Governments	USD 425.30 Million
	Total	USD 1,225.30 Million

10.3 Second Rural Connectivity Investment Program (SRCIP)

Government of India has obtained additional financing of USD 500 Million through MFF from Asian Development Bank under the SRCIP to assist portion of the PMGSY in Assam, Chhattisgarh, Madhya Pradesh, Odisha and West Bengal. Tranche 3 was planned for 2,800 km in Assam (800 km), Chhattisgarh (500 km), Odisha (500 km) and West Bengal (1,000 km) states.

Financing	Tranche 1 (in USD Million)	Tranche 2 (in USD Million)	Tranche 3 (Under Planning) (in USD Million)	Total (in USD Million)	Share (%)
ADB (Ordinary Capital resources) (41.7%)	250	110	140	500	40.81
Government of India (58.3%)	415.32	193	116.94	725.26	59.19
Total	**665.32**	**303**	**256.94**	**1,225.26**	**100.00**

a. Loan 3611-IND (Tranche 1)

The loan for USD 250 Million was signed on 30th January 2018 and is effective from 20th March 2018. This comprises up gradation of rural roads of Assam, Chhattisgarh, Madhya Pradesh, Odisha and West Bengal. The Loan has been completed & disbursement of USD 190.73 Million has been made USD 59.27 Million has been surrendered by way of savings.

b. **Loan 3703-IND (Tranche 2)**

The loan for USD 110 Million was signed on 5th October 2018 and is under execution. This will comprise up gradation of 2859 km road length in state of Madhya Pradesh. The loan became effective on 2nd April, 2019. Disbursement of USD 88.02 Million has been made till 31st March 2022 out of USD 91.943 Million (USD 18.057 Million has been surrendered by way of savings). The project has closed.

10.4 Technical Assistance under ADB project

Asian Development Bank provided the technical assistance of USD 0.50 Million on grant basis from ADB's Technical Assistance Special Fund. Technical Assistance focused to assist RRNMU and RCTRC to contribute in the delivery of intended output of the investment program, viz.

a. Enhancing Sustainability

b. Enhancing resilience

c. Promoting innovation

11. Implementation of Online Bid Security and Tender Fee in PMGSY Tenders

In furtherance of the Digital India Mission and to promote transparency and ease of doing business, it was decided that online mode of deposit of Bid Security and Tender Fee be implemented in PMGSY tenders through the website pmgsytenders.gov.in. An MoU was signed with SBI for online EMD collection on 02.07.2020. As on 31.03.2022, online collection of EMD and tender fee in PMGSY tenders have been enabled for 27 States and 4 UTs.

12. Verification of the amount of interest credited by Banks

As per the operation manual of PMGSY, all funds over and above Rs. 50 lakhs lying in the Programme and Administrative Expenses Funds of SRRDAs bank accounts must be converted to Multi Option Deposit Scheme (MODS)/ Corporate Liquid Terms Deposit (CLTD) at an interest rate not below that of 91 days treasury bills. A special drive has been launched to verify the amount of interest credited by banks in the savings bank accounts as well on CLTDs.

In 2020, NRIDA issued instructions to all the SRRDAs to verify the interest earned in the bank accounts of Programme, Administrative and Maintenance Fund regularly on a quarterly basis; and the SRRDAs were directed to submit an annual interest verification certificate duly signed by the Empowered Officer and the Financial Controller. In case any discrepancy is found in the calculation of the amount of interest, the matter was to be taken up with the bank by the State/UT and the requisite amount recovered from the Bank. This matter was vigorously pursued by NRIDA and as a result a short interest of Rs.612.31 Crore was detected by States/UTs till now (interest verification is under

process) out of which Rs.295.75 Crore has already been recovered by States/ UTs from various banks managing PMGSY funds upto 31st December 2022.

13. Switching Over to REAT (Receipt, Expenditure, Advance and Transfer) Module of PFMS

Since August 2018, the Public Financial Management System (PFMS) is being utilized for making PMGSY Programme fund payments all across the country. The Direct Benefit Transfer (DBT) module of PFMS that was being used for making payments has certain limitations as it does not differentiate between expenditure, advance, deductions and transfer but instead treats all transactions as expenditure resulting in unclear reporting. To overcome the issue, NRIDA was advised to migrate from DBT to REAT module of PFMS. Accordingly, a trial of REAT module was started with Chhattisgarh State in May 2020. After successful trial in the State of Chhattisgarh, REAT module has been implemented in all the states in FY 2020-21 and same is continuing.

14. Treasury Single Account (TSA) in RBI for NRIDA

Ministry of Finance, Department of Economic Affairs (Budget Division) has decided to expand the TSA system for release of payments/grants to eighteen (18) Autonomous Bodies (ABs)/ implementing agencies including NRIDA. TSA system has been introduced with a view to minimize the cost of Govt. borrowings and to enhance efficiency in funds flow in ABs. This system is fully online on PFMS with no physical flow of assignment to RBI. TSA Assignment Accounts of ABs/ Sub-ABs are used only for making payments within the adequate limits assigned to this account through PFMS. NRIDA opened TSA Account with RBI and is using it since 1st August 2020.

15. Release of Funds (Loan from NABARD) for Pradhan Mantri Awas Yojana – Gramin (PMAY- G)

The Government on 23rd March, 2016 has approved the implementation of PMAY-G. Around 2.95 crore houses are to be constructed under PMAY-G in a phased manner. In the first phase, one crore houses are to be constructed over a period of 3 years viz. 2016-17 to 2018-19 with a financial requirement towards Central Share amounting to Rs. 81,975 crore. Central share would be 60% of the per unit assistance for all States except for the North Eastern States and three Himalayan States where it would be 90%. Union Cabinet had also approved that out of the total financial requirement of Rs.81,975 crore for construction of one crore houses in a period of 3 years (2016-17 to 2018-19), an amount of Rs.60,000 crore would be met form budgetary sources and the balance financial requirement of Rs.21,975 crore shall be met through borrowing from National Bank for Agriculture and Rural Development (NABARD). Accordingly, MoRD, GOI borrowed Rs.21,975 crore from NABARD from 2017-18 onwards in a phased manner,

for providing central share assistance for construction of one crore houses.

MoRD designated NRIDA, an entity registered under Societies Registration Act, 1860 to act as the Nodal Agency for borrowing funds from NABARD for PMAY-G and also to release funds as Central Assistance to the State Governments/UTs/ Implementing agencies, based on the sanction issued by MoRD. A total loan of Rs.48819.03 Crore have been taken from NABARD for part funding of PMAY-G, from FY 2017-18 to 2020-21. The details of loan taken during the different years and tranches is attached as Annexure VIII.

16. Implementation of Single Nodal Agency (SNA) for release of funds under Centrally Sponsored Schemes (CSS) and monitoring mechanism for utilization of funds

With a view to have effective cash management and to bring efficiency in the public expenditure management, the Ministry of Finance, Department of Expenditure vide OM No.1(13)/PFMS/FCD/2020 dated 23rd March, 2021 issued revised procedure for release of funds under the Centrally Sponsored Schemes(CSS) and for monitoring of utilization of the funds already released. The revised procedure, inter-alia mandated that the Single Nodal Agency implementing the scheme in the states will open a Single Nodal Bank Account (SNBA) for each CSS at the state level in the Scheduled Commercial Bank authorized to conduct Government business by the state government. The Ministry of Finance, Department of Expenditure has vide subsequent OM Dated 30th September, 2021 prescribed that further release of fund under CSS to the states would be subject to the condition that the implementing agency has opened a Single Nodal Account for the scheme in the states; other bank accounts of the SNA for the scheme concerned are closed and balance available in such accounts are transferred to the Single Nodal Account and the same is mapped on PFMS against the scheme.

All States/ UTs have acted on the advisory and have transferred all the funds released by the Ministry along with the state share in the Single Nodal Account opened for the scheme namely Pradhan Mantri Gram Sadak Yojana (PMGSY). This matter was vigorously pursued by NRIDA and as a result, total of 1,063 child agency accounts of 28 states, 2 UTs, and 6 RCPLWEA have been mapped on PFMS upto 31.03.2022.

17. Statement of Intent (SoI) between NRIDA and Microsave India Consulting Private Limited

A Statement of Intent was executed between National Rural Infrastructure Development Agency and Microsave India Consulting Private Ltd on 13th September 2021. The tenure of this Statement of Intent was 12 months. The SoI has been further extended upto 12th September 2023.

1. The followings are the objectives of SoI:

a. To identify gaps in the overall fund flow management at the national and state level (from MoRD to state/ SRRDA/ DPIU and payments to contractors) in the context of delays in the fund transfer and payment processing, float or shortages of funds, and utilization reporting and reconciliation.

b. To identify gaps in project monitoring and IT system and to make OMMAS more user-friendly.

c. To shortlist or identify functionalities that would address each of the identified challenges.

d. To recommend functional requirement specifications, high-level design, and future vision document and implementation of roadmap to conduct the proposed pilot.

e. To propose a future vision document of potential IT systems scale-up in PMGSY.

2. As per SoI MSC will be responsible for meeting is own expenses in connection with all matters related to this SoI and there would be no financial liability on NRIDA.

3. The MSC has conducted field studies in Haryana, Rajasthan, Punjab and Madhya Pradesh. During these field studies the officials of MSC have interacted with various grassroots level functionaries from districts to state headquarters. On the basis of the studies conducted, the Agency has submitted a report containing following findings/ observations:

a. Recommendations for improvement in OMMAS

b. Functional Requirement Specifications (FRS) of following modules:

   i. Single Project Registry

   ii. e-measurement book

   iii. Smart Payment Engine

c. OMMAS UI enhancement suggestions and mock screens.

18. Budget/ Grant-in-Aid to NRIDA

During the financial year 2021-22 the opening balance in the account of NRIDA was Rs.5.28 crores. Interest and Miscellaneous receipts were Rs. 0.84 crores and MoRD released a total grant of Rs.3853.30 crores (Rs.3814.63 as Grants-in-Aid for interest payment to NABARD loan, Rs.5.28 crores under Grants-in-Aid Salaries, Rs.33.04 crores under Grants-in-Aid General, and Rs.0.35 crores under Grants-in-Aid for ADB assisted projects). The total expenditure incurred during the year was Rs.3855.99 crores. The expenditure was mainly towards Rural Housing Loan under Pradhan Mantri Awas Yojana

- Gramin interest payment to NABARD for Loan taken for Rural Housing (Rs.3817.97 crores), for expenditure of NRIDA (Rs.37.67 crores), and for ADB Projects (Rs.0.35 crores). Details of Head wise expenditure for the financial year 2021-22 are given at Annexure IX.

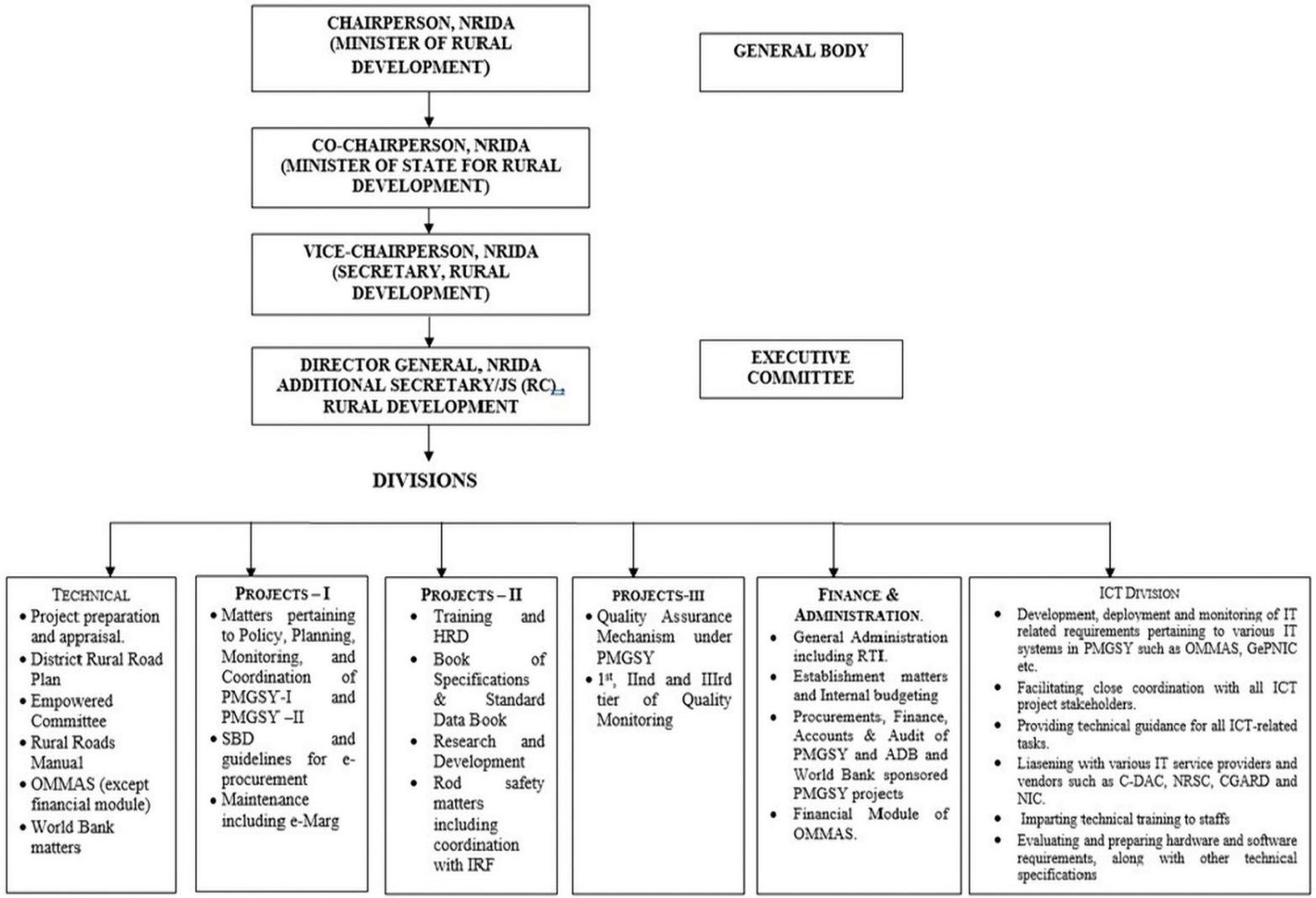
19. Accounts & Audit

The Accounts of the Agency have been audited by M/s G.K. Sureka & Co., Chartered Accountant appointed for this purpose. The audited Accounts in the form of Balance Sheet, Receipt and Payment Account, Income and Expenditure Account, for the year 2021-22 along with the Notes to Accounts are enclosed as Annexure IX- A to IX-G.

20. Implementation of Official Language Policy in NRIDA

NRIDA has implemented Official Language policy of the Government of India, in its day to day official work as contained in the Official Language Act, 1963 and Official Language Rules 1976. All officers of the level of Assistant Director and above in this office have been included in the Official Language Implementation Committee constituted in this office. Quarterly review meetings are being organized regularly to ensure implementation of official language policy. Hindi Pakhwara was observed during 14th to 28th September 2021 in which various competitive programs relating to progressive use of Hindi were also organized and cash prizes given to winners. NRIDA also brings out an annual in house Hindi Magazine called 'Rajbhasha Smarika' and its 9th edition was released by the Director General, NRIDA at the closing ceremony of the Hindi Pakhwara. During the year 2021-22, a workshop was organized in NRIDA through video conferencing on 25th February 2022, for promoting the use of Hindi in official work.

Organizational Chart



Annexure-II (i)

Details of Proposals cleared during 2021-22 under PMGSY- I

Sl. No.	State	Value (Rs. in crores)	No. of Road works	Length (in km)	No. of Bridges
1	Sikkim	26.97	-	-	15
2	Uttarakhand	1061.72	133	1156.76	144
	TOTAL	**1088.69**	**133**	**1156.76**	**159**

Annexure-II (ii)

Details of Proposals cleared during 2021-22 under PMGSY- II

Sl. No.	State	Value (Rs. in crores)	No. of Road works	Length (in km)	No. of Bridges
1	Kerala	3.64	-	-	1
2	Uttarakhand	16.09	-	-	7
	TOTAL	**19.73**	**-**	**-**	**8**

Annexure-II (iii)

Details of Proposals cleared during 2021-22 under PMGSY- III

Sl. No.	State	Value (Rs. in crores)	No. of Road works	Length (in km)	No. of Bridges
1	Haryana	282.91	56	590.44	-
2	Jharkhand	629.58	108	979.35	-
3	Kerala	388.95	123	581.67	-
4	Madhya Pradesh	3473.42	501	5167.033	146
5	Maharashtra	257.69	50	344.20	-
6	Odisha	2454.64	580	3980.10	28
7	Punjab	63.21	2	28.27	16
8	Tamil Nadu	745.22	275	1253.53	-
9	Telangana	50.88	10	58.86	5
10	Uttar Pradesh	10068.07	1636	12482.79	-
	Total	**18414.57**	**3341**	**25466.24**	**195**

Annexure-II (iv)

Details of Proposals cleared during 2021-22 under RCPLWEA

Sl. No.	State	Value (Rs. in crores)	No. of Road works	Length (in km)	No. of Bridges
1	Andhra Pradesh	74.68	2	24.58	15
2	Bihar	210.53	11	189.2	1
3	Jharkhand	1037.41	183	1135.89	97
4	Madhya Pradesh	144.63	28	241.07	-
5	Odisha	34.28	4	42.99	-
	Total	**1501.55**	**228**	**1633.75**	**113**

Annexure III

List of Principal Technical Agencies (PTAs) & States allotted to them

Sl. No.	Name of the PTA	States Covered
1.	Central Road Research Institute (CRRI), New Delhi	All States and UTs (Over and above all PTAs), Maharashtra & Gujarat
2.	Indian Institute of Technology, Roorkee	Uttarakhand, Uttar Pradesh and Bihar
3.	National Institute of Technology, Warangal	Andhra Pradesh & Telangana
4.	Birla Institute of Technology and Science, Pilani	Rajasthan, Punjab, Haryana, Jammu & Kashmir, Ladakh and Himachal Pradesh
5.	College of Engineering, Bangalore University, Bangalore	Karnataka, Tamil Nadu, Kerala and Goa
6.	Indian Institute of Technology, Kharagpur	North Eastern States of Assam, Arunachal Pradesh, Manipur, Mizoram, Meghalaya, Nagaland, Sikkim, Tripura and West Bengal.
7.	Indian Institute of Technology, Bhubaneshwar	Chhattisgarh, Jharkhand and Odisha
8.	Maulana Azad National Institute of Technology (MANIT), Bhopal	Madhya Pradesh

Annexure IV

List of State Technical Agencies (STAs)

Sl. No.	State/UT	STAs
1.	Andaman & Nicobar	JNTUH College of Engineering, Kukatpally, Hyderabad-500085 (Telangana)
2.	Andhra Pradesh	National Institute of Technology, Warangal-506004
		Andhra University college of Engineering,Visakhapatnam-530003
		University College of Engineering, JNTU Kakinada- 533003
		JNTUH College of Engineering, Kukatpally Hyderabad-590085
3.	Arunachal Pradesh	Jorhat Engineering College, Jorhat-785007
4.	Assam	Indian Institute of Technology, Guwahati- 781039
		Assam Engineering College, Jalukbari, Guwahati-781013
		Jorhat Engineering College, Jorhat-785007
		National Institute of Technology, Silchar-788010
5.	Bihar	National Institute of Technology, Patna -800005
		Muzaffarpur Institute of Technology, Muzaffarpur-842003
		Bhagalpur College of Engineering, Bhagalpur-813210
		Indian Institute of Technology, Patna
6.	Chhattisgarh	National Institute of Technology, GE Road, Raipur-492010
		Bhilai Institute of Technology, Durg
		Veer Surendra Sai University of Technology, Burla, Sambalpur, Odisha
7.	Goa	Goa College of Engineering, Farmagudi, Ponda-403401
8.	Gujarat	S.V. National Institute of Technology, Ichchhanath, Surat-395007
9.	Haryana	National Institute of Technology, Kurukshetra-136119
		Thapar Institute of Engineering & Technology, Patiala-147004, Punjab
		Deenbandhu Chhotu Ram University of Science and Technology, Murthal Sonipat-131039
10.	Himachal Pradesh	National Institute of Technology, Hamirpur-177005
11.	Jammu & Kashmir	National Institute of Technology, Srinagar-190006, J&K
		Govt. College of Engineering & Technology, Jammu-181122
12.	Jharkhand	Birla Institute of Technology, Mesra-835215, Ranchi
		Indian Institute of Technology, Bhubaneswar
13.	Karnataka	Bangalore University, Jnanabharathi, Bangalore-560056

Sl. No.	State/UT	STAs
		National Institute of Technology, Surathkal, P.O. Srinivasnagar, Mangalore-575025
		P.D.A. College of Engineering, Gulbarga-585102
		Rasta- Resource Centre for Asphalt and Soil Training Academy, Bangalore-560058, Karnataka
		P.E.S. College of Engineering, Mandya-571401
		Government SKSJ Technological Institute, K.R. Circle, Bangalore- 560001
14.	Kerala	College of Engineering , Trivandrum-695016
		National Institute of Technology, Calicut- 673601
		Shri G.S. Institute of Technology & Science, Indore- 452003
		Madhav Institute of Technology & Science, Gwalior- 474005
		Samrat Ashok Technological Institute, Vidisha-464001
		Ujjain Engineering College, Ujjain
15.	Madhya Pradesh	Maulana Azad National Institute of Technology, Bhopal-462051
		Jabalpur Engineering College, Jabalpur-482011
		Shri G.S. Institute of Technology & Science, Indore- 452003
		Madhav Institute of Technology & Science, Gwalior- 474005
		Samrat Ashok Technological Institute, Vidisha-464001
16.	Maharashtra	Ujjain Engineering College, Ujjain
		Govt. College of Engineering, Aurangabad-431005
		Govt. College of Engineering, Shivajinagar, Pune
		Government College of Engineering, Amravati-444604
		Sardar Patel College of Engineering, Mumbai-400058
17.	Manipur	National Institute of Technology, Silchar-788010
		Manipur Institute of Technology, Takyelpat, Imphal
18.	Meghalaya	Indian Institute of Technology, Guwahati
		Jorhat Engineering College, Jorhat- 785007
19.	Mizoram	Indian Institute of Technology, Kharagpur-721303
		National Institute of Technology, Silchar (For Bridges), Silchar-788010
20.	Nagaland	Jorhat Engineering College, Jorhat-785007
21.	Odisha	National Institute of Technology, Rourkela-769008
		College of Engg. & Technology, Bhubaneshwar- 751003
		Veer Surendra Sai University of Technology, Burla-768018
		Indira Gandhi Institute of Technology, Sarang
		Indian Institute of Technology, Dist-Dhenkanal (Orissa) Bhubaneswar

Sl. No.	State/UT	STAs
22.	Punjab	Punjab Technical University, Giani Zail Singh Campus, Dabwali Road, Bathinda-151001
		Thapar Institute of Engineering & Technology, Patiala-147004
		Guru Nanak Dev Engineering College, Ludhiana-141006
23.	Rajasthan	Birla Institute of Technology and Science, Pilani
		Malaviya National Institute of Technology, Jaipur-302017
		University College of Engineering, Rajasthan Technical University, Kota-324010
		MBM Engineering College, Jai Narain Vyas University, Jodhpur-342011
24.	Sikkim	Govt. Engineering College, Jalpaiguri-735102
		Sikkim Manipal Institute of Technology, Majhitar, Sikkim
25	Tamil Nadu	National Institute of Technology, Tiruchirappalli-620015
26	Telangana	National Institute of Technology, Warangal-506004
		JNTUH College of Engineering, Kukatpally, Hyderabad-500072
		University College of Engineering, Osmania University, Hyderabad - 500007
27.	Tripura	National Institute of Technology, Agartala-799055
28.	Uttar Pradesh	Motilal Nehru National Institute of Technology, Allahabad-211004
		Indian Institute of Technology, Roorkee-247667
		Kamla Nehru Institute of Technology, Sultanpur-228118
		Harcourt Butler Technical University, Kanpur-208002
		Institute of Engineering & Technology, Sitapur Road, Lucknow-226021
		Institute of Technology, Banaras Hindu University, Varanasi-221005
		M.M.M. University of Technology, Gorakhpur-273010
29.	Uttarakhand	Indian Institute of Technology, Roorkee-247667
		G.B. Pant University of Agriculture & Technology, Pantnagar-263145
30.	West Bengal	Indian Institute of Technology, Kharagpur-721302
		Govt. Engineering College, Jalpaiguri-735102
		Indian Institute of Engineering Science and Technology, Shibpur, Howrah-711103
		Jadavpur University, Kolkata- 700032
		National Institute of Technology, Durgapur 713209
31.	Puducherry	National Institute of Technology, Tiruchirappalli-620015
32.	Ladakh	National Institute of Technology, Srinagar - 190006, J&K

Annexure V (i)

Physical Achievements for habitations under PMGSY upto 31st March 2022

Sl. No.	State/UTs	Total Eligible Unconnected Habitations (Nos.)	Connected Habitations under PMGSY (Nos.)	State Connected Habitations (Nos.)	Total Connected Habitations (Nos.)	Dropped Habitations (Nos.)	Not Feasible Habitations (Nos.)
1	Andaman & Nicobar Islands	7	6	-	6	-	-
2	AndhraPradesh	1,636	1,222	357	1,579	23	22
3	Arunachal Pradesh	642	557	-	557	1	-
4	Assam	15,321	13,702	1,428	15,130	145	-
5	Bihar	34,586	29,631	3,112	32,743	1,454	-
6	Chhattisgarh	10,638	9,553	550	10,103	296	56
7	Goa	15	-	-	-	15	-
8	Gujarat	3,387	3,048	319	3,367	11	9
9	Haryana	1	1	-	1	-	-
10	Himachal Pradesh	3,554	2,468	656	3,124	77	257
11	Jammu & Kashmir	2,420	2,071	185	2,256	90	-
12	Jharkhand	11,469	9,541	1,539	11,080	389	-
13	Karnataka	423	296	127	423	-	-
14	Kerala	434	402	17	419	13	-
15	Madhya Pradesh	19,447	17,509	1,601	19,110	258	60
16	Maharashtra	1,950	1,339	480	1,819	105	18
17	Manipur	667	606	15	621	-	-
18	Meghalaya	771	430	125	555	3	41
19	Mizoram	256	231	12	243	5	7
20	Nagaland	116	96	7	103	-	-
21	Odisha	16,488	15,275	1,054	16,329	86	20
22	Punjab	535	389	146	535	-	-
23	Rajasthan	16,451	15,983	282	16,265	191	-
24	Sikkim	359	343	9	352	-	-
25	Tamil Nadu	2,013	1,985	11	1,996	9	8
26	Tripura	2,071	1,957	31	1,988	32	2
27	Uttar Pradesh	14,804	11,748	2,436	14,184	619	-
28	Uttarakhand	2,658	1,812	778	2,590	5	8
29	West Bengal	14,221	13,095	631	13,726	435	-
30	Telangana	767	595	164	759	7	1
31	Ladakh	78	64	13	77	-	-
	Total:	**1,78,184**	**1,55,955**	**16,086**	**1,72,041**	**4,269**	**509**

Annexure V (ii)

Physical Achievements (Cumulative) for length completed under PMGSY upto 31st March 2022

Sr. No.	State(s)	Length completed (km)
1	Andaman and Nicobar Islands	44.73
2	Andhra Pradesh	16,313.68
3	Arunachal Pradesh	12,065.97
4	Assam	30,515.26
5	Bihar	56,051.65
6	Chhattisgarh	41,538.01
7	Goa	155.33
8	Gujarat	13,777.26
9	Haryana	7,188.13
10	Himachal Pradesh	19,624.45
11	Jammu and Kashmir	17,335.85
12	Jharkhand	27,405.14
13	Karnataka	21,665.92
14	Kerala	3,779.37
15	Ladakh	890.44
16	Madhya Pradesh	84,693.27
17	Maharashtra	26,820.23
18	Manipur	9,433.11
19	Meghalaya	3,734.56
20	Mizoram	4,063.13
21	Nagaland	4,119.83
22	Odisha	65,021.09
23	Punjab	8,528.25
24	Rajasthan	72,331.59

Sr. No.	State(s)	Length completed (km)
25	Sikkim	4,324.98
26	Tamil Nadu	21,565.10
27	Telangana	11,661.59
28	Tripura	4,707.73
29	Uttar Pradesh	60,471.92
30	Uttarakhand	18,592.99
31	West Bengal	36,330.84
Total		**7,04,751.39**
32	Dadra & Nagar Haveli	-
33	Daman & Diu	-
34	Delhi	-
35	Lakshadweep	-
36	Puducherry	-
Total		**7,04,751.39**

Annexure VI

PMGSY Outcome Achievement during 2021-22

Sl. No.	State(s)	Habitations Connected (Nos.)	Length Completed (km)
1	Andaman And Nicobar Islands (UT)	-	14
2	Andhra Pradesh	43	1,262
3	Arunachal Pradesh	29	598
4	Assam	73	2,164
5	Bihar	300	1,859
6	Chhattisgarh	89	3,034
7	Goa	-	-
8	Gujarat	-	1008
9	Haryana	-	1,383
10	Himachal Pradesh	62	1,624
11	Jammu and Kashmir	114	3,284
12	Jharkhand	9	1,001
13	Karnataka	-	2,525
14	Kerala	-	67
15	Madhya Pradesh	16	4,443
16	Maharashtra	6	199
17	Manipur	10	682
18	Meghalaya	47	826
19	Mizoram	11	346
20	Nagaland	1	198
21	Odisha	208	2,828
22	Pondicherry(UT)	-	-
23	Punjab	-	285
24	Rajasthan	2	3,256
25	Sikkim	11	140
26	Tamil Nadu	-	2,064
27	Tripura	13	170
28	Uttar Pradesh	-	3,369
29	Uttarakhand	150	2,075
30	West Bengal	23	526
31	Telangana	-	631
32	Ladakh(UT)	-	109
33	Dadra & Nagar Haveli	-	-
34	Daman& Diu	-	-
35	Delhi	-	-
36	Lakshadweep	-	-
Total:		**1,217**	**41,970**

Annexure VII

PMGSY - New Technology Achievements during 2021-22
(Target Length: 10,000 km)

Sl. No.	State	Length Completed under PMGSY-I	Length Completed under PMGSY-II	Length Completed under PMGSY-III	Length Completed under RCPLWEA	Total Length Completed
A	B	C	D	E	F	G=C+D+E+F
1	Andaman & Nicobar Islands	25.36	-	-	-	25.36
2	Andhra Pradesh	260.25	20.12	137.42	127.81	545.59
3	Arunachal Pradesh	236.29	22.00	-	-	258.29
4	Assam	117.05	322.81	151.46	-	591.32
5	Bihar	143.39	1563.69	-	-	1756.16
6	Chhattisgarh	119.80	11.20	1252.12	68.95	1452.07
8	Gujarat	-	-	90.13	-	90.13
9	Haryana	-	-	1264.50	-	1264.50
10	Himachal Pradesh	463.22	54.38	-	-	517.60
11	Jammu & Kashmir	182.74	40.80	-	-	223.54
12	Jharkhand	408.53	236.37	-	70.07	714.96
13	Karnataka	-	-	201.56	-	-
14	Kerala	11.74	10.88	-	-	22.61
15	Madhya Pradesh	140.93	22.91	1024.72	1.44	1190.00
16	Maharashtra	5.00	-		1.84	6.84
17	Manipur	27.80	34.80	-	-	62.60
18	Meghalaya	281.04	51.13	-	-	332.17
19	Mizoram	56.37	-	-	-	56.37
20	Nagaland	-	-	-	-	-
21	Odisha	769.22	162.39	95.75	-	1027.36

Sl. No.	State	Length Completed under PMGSY-I	Length Completed under PMGSY-II	Length Completed under PMGSY-III	Length Completed under RCPLWEA	Total Length Completed
22	Punjab	-	-	10.96	-	10.96
23	Rajasthan	-	-	3303.83	-	3303.83
24	Sikkim	2.00	-	-	-	2.00
25	Tamil Nadu	37.71	38.40	535.07	-	611.18
26	Telangana	86.24	-	68.72	-	154.96
27	Tripura	36.50	15.70	-	-	52.20
28	Uttar Pradesh	8.00	-	322.14	97.18	427.31
29	Uttarakhand	644.62	286.25	-	-	930.87
30	West Bengal	71.56	132.43	-	-	203.99
31	Ladakh	-	-	-	-	-
Total		**4135.35**	**3026.26**	**8458.37**	**416.36**	**16036.34**

Annexure VIII

Details of Loan Taken from NABARD for PMAY-G

Month	Date of Loan Availed/Taken	Amount of Loan (Rs. in crore)
February, 2018	27.02.2018	2,180.00
March, 2018	09.03.2018	2,227.00
March, 2018	16.03.2018	2,922.43
October, 2018	05.10.2018	2,814.40
December, 2018	13.12.2018	1,971.40
December, 2018	26.12.2018	2,379.90
February, 2019	13.02.2019	1,283.10
March, 2019	22.03.2019	2,230.00
January, 2020	31.01.2020	5,102.60
February, 2020	10.02.2020	3,283.40
March, 2020	19.03.2020	2,425.00
November, 2020	19.11.2020	3,343.70
November, 2020	25.11.2020	2,777.60
December, 2020	30.12.2020	2,012.30
February, 2021	22.02.2021	520.50
March, 2021	17.03.2021	3,439.00
March, 2021	23.03.2021	7,906.70
Total		**48,819.03**

Annexure IX

Actual Expenditure of NRIDA for the year 2021-22

Object Head & Purpose	BE 2021-22 (Rs. in Lakh)	Total Expenditure (Rs. in Lakh)
(1.2.1) Establishment		
(1.2.1.01) Salary and Allowance	1075	474.44
(i) Deputationists	1075	474.44
(ii) Retired officers	-	-
(iii) Support Staff/others	-	-
(1.2.1.03) Overtime Allowances	-	-
(1.2.1.04) Expenditure on Medical Claims	35	2.85
(1.2.1.05) Leave Encashment	10	0.46
Total Establishment	**1120**	**477.75**
(1.2.2) Administrative Expenses		
(1.2.2.01) Office Maintenance/Taxes and Duties	60	44.54
(1.2.2.02) Domestic Travel Expenses	50	22.59
(1.2.2.03) Foreign Travel Expenses	-	-
(1.2.2.04) Hiring of Vehicles	45	28.18
(1.2.2.05) Printing and Stationary	2	4.51
(1.2.2.06) Meetings Expenses	2	0.87
(1.2.2.07) Fee paid to Auditors	3	0.8
(1.2.2.08) Telephone - Office	4	1.83
(1.2.2.09) Telephone - Residential & Mobile	4	2.25
(1.2.2.10) Vehicle Maintenance	8	5.51
(1.2.2.11) Electricity Expenses	30	30.59
(1.2.2.12) Postage Expenses	3	1.49
(1.2.2.13) Repairs and Maintenance	5	0.42
(1.2.2.14) Insurance Charges	-	-
(1.2.2.15) Other Office Expenses	30	35.04
(1.2.2.16) Rent , Rates & Taxes	130	96.97
Total Administrative Exp	**376**	**275.59**
(1.2.3) R&D and HRD		
(1.2.3.01) Training	70	86.47
(1.2.3.02) Tech. Dev. and Research work	534.50	276.22

Actual Expenditure of NRIDA for the year 2021-22

Object Head & Purpose	BE 2021-22 (Rs. in Lakh)	Total Expenditure (Rs. in Lakh)
(1.2.3.03) Workshops and Conferences	60	27.09
(1.2.3.04) Contribution to Professional bodies	10	5.76
(1.2.3.05) Professional Services	746.8	587.95
Total R & D and HRD	**1421.3**	**983.49**
(1.2.4) Publications, Adv.& Publicity		
(1.2.4.01) Publications	3	-
(1.2.4.02) Advertisement and Publicity	20	9.5
(1.2.4.03) Books Perio.and Audio Visual Mat.	2	0.03
Total Publications, Adv. & Publicity	**25**	**9.53**
(1.2.5) STAs, PTAs and NQMs		
(1.2.5.01) Honorarium to NQMs	220	310.75
(1.2.5.02) Travelling Expenses of NQMs	200	170.8
(1.2.5.03) Payment to Principal Technical Agencies	100	114.82
((1.2.5.04) Payment to State Technical Agencies	300	571.79
Total STAs, PTAs, and NQMs	**820**	**1168.16**
(1.2.6) OMMS and Computerization		
(1.2.6.01) Dev.and Maint.of online manag.sys.	389.5	699.2
(1.2.6.02) Hiring of computers and peripherals	-	-
(1.2.6.03) Dev. And maint. of e-procurement and Website	3	1.86
Total OMMS and Computerization	**392.5**	**701.06**
(1.2.8) Technical Assistance from ADB		
(1.2.8.01) Consultancy	150	34.73
(1.2.8.02) Other		
Total Technical Assistance from ADB	**150**	**34.73**
(2.2) Capital Expenditure		
(2.2.01) Purchase/Renovation of Office Area	28	70
(2.2.02) Furniture and Furnishing of the office	4	0.9
(2.2.03) Purchase of Vehicles	16	15.77
(2.2.04) Purchase of Equipments & Machinery	368.2	123.56
(2.2.05) Purchase of Computers & peripherals	20	7.97
Total Capital Expenditure	**436.2**	**218.2**
Total	**4741**	**3868.51**

Annexure IX A

NATIONAL RURAL INFRASTRUCTURE DEVELOPMENT AGENCY BALANCE SHEET AS ON MARCH 31st 2022 (Amount in Rs.)

CAPITAL FUND & LIABILITIES	Schedule	2021-22	2020-21
Capital/Corpus Funds	1	5,99,06,821.56	7,95,99,029.31
Loan From NABARD for Rural Housing	2	4,88,19,03,00,000.00	4,88,19,03,00,000.00
Current Liabilities and Provisions	4	2,00,12,619.00	1,08,44,704.00
Total		**4,88,27,02,19,440.56**	**4,88,28,07,43,733.31**
ASSETS			
Fixed Assets	3	3,13,40,018.04	2,49,77,218.79
Current Assets, Loans and Advances	5	4,85,79,422.52	6,54,66,514.52
Advance to States for Rural Housing	2	4,88,19,03,00,000.00	4,88,19,03,00,000.00
Total		**4,88,27,02,19,440.56**	**4,88,28,07,43,733.31**
Significant Accounting Policies and Notes to Account	12		

Annexure to our report of even date

For National Rural Infrastructure Development Agency

For G.K. Sureka & Co.
Chartered Accountants

CA Khurram Javed	**(Pradeep Agrawal)**	**(Ashish Kumar Goel)**
Partner	Director (F&A)	Director General

Place : New Delhi
Date: 20.09.2022

Annexure IX B

NATIONAL RURAL INFRASTRUCTURE DEVELOPMENT AGENCY SCHEDULES FORMING PART OF BALANCE SHEET AS ON MARCH 31st 2022

SCHEDULE 1 - CAPITAL/CORPUS FUNDS: **(Amount in Rs.)**

Particulars	2021-22	2020-21
1). Capital Asset Fund		
Balances as at the beginning of the year	5,42,78,169.05	4,99,12,106.05
Add: Contributions towards Capital Fund	1,02,01,621.00	43,66,063.00
TOTAL	**6,44,79,790.05**	**5,42,78,169.05**
2).Grant in Aid		
As per the last Balance Sheet	(50,93,04,356.32)	(37,59,54,832.46)
Add/Less:- Excess of Income over Expenditure for the Year	(1,96,92,207.75)	(12,89,83,460.86)
Less: Transferred to Capital Fund to the extent of Asset purchased/Sold	(1,02,01,621.00)	(43,66,063.00)
TOTAL	**(53,91,98,185.07)**	**(50,93,04,356.32)**
3). World Bank Assistance		
As per the last Balance Sheet	53,46,25,216.58	53,46,25,216.58
TOTAL	**53,46,25,216.58**	**53,46,25,216.58**
TOTAL (1+2+3)	**5,99,06,821.56**	**7,95,99,029.31**

SCHEDULE 2 - NON- CURRENT LIABILITIES:

Particulars	2021-22	2020-21
1. Loan Taken from NABARD for further disbursement to the different states (Rural Housing)	4,88,19,03,00,000.00	4,88,19,03,00,000.00
TOTAL	**4,88,19,03,00,000.00**	**4,88,19,03,00,000.00**

SCHEDULE 4 - CURRENT LIABILITIES AND PROVISIONS:

Particulars	2021-22	2020-21
1. Security Deposits	35,321.00	35,321.00
2. Expenses Payable	1,97,98,384.00	1,07,42,969.00
3. Sundry Creditor	1,78,914.00	66,414.00
4. Interest received on S/B A/c earmarked for NABARD Rural Housing Interest Payable	-	-
TOTAL	**2,00,12,619.00**	**1,08,44,704.00**

SCHEDULE 5 - CURRENT ASSETS, LOANS, ADVANCES ETC.

Particulars	2021-22	2020-21
A. CURRENT ASSETS		
Cash & Bank Balances:		
Cash in Hand (Imprest)	-	-
Bank Balances		
-HDFC A/C NO. 3152 (MoRD)	235,551.30	220,656.30
-HDFC A/C NO. 7165 (For NABARD)		-
-State Bank of India (Current)	-	-
-State Bank of India (Savings)	1,69,47,699.94	1,24,71,176.94
-State Bank of India (Savings for RH Bhikaji Cama)	68,47,991.00	1,25,96,220.00
-State Bank of India (Savings for RH)	1,99,306.00	2,07,89,661.00
Fixed Deposit		
FDR - Other Grant	4,62,941.00	4,62,941.00
FDR-SBBJ A/C	94,79,628.00	61,00,000.00
Against Bank Guarantee	96,166.28	96,166.28
Total (A)	**3,42,76,429.52**	**5,27,51,716.52**
B. LOAN, ADVANCES AND OTHER ASSETS		
1. Advances and other amounts recoverable	1,43,02,993.00	1,24,94,698.00
2. Income Tax Refundable (A.Y. 2013-14)	-	2,20,100.00
3. Perior Period Adjustment	-	-
Total (B)	**1,43,02,993.00**	**1,27,14,798.00**
Total (A+B)	**4,85,79,422.52**	**6,54,66,514.52**

SCHEDULE 6- GRANTS IN AID MoRD

Particulars	2021-22	2020-21
(Irrevocable Grants Received)		
1)For Meeting Agency Expenses	38,31,81,664.50	26,68,00,000.00
2) For World Bank Projects	-	7,36,43,305.00
3) For ADB Assisted Projects	34,73,091.00	2,00,00,000.00
4) For Rural Housing (Loan Received from NABARD)	-	-
5) For Rural Housing (Interest payment to NABARD)	38,14,63,25,603.00	24,04,72,36,675.00
(A)Amount Received During the year	38,53,29,80,358.50	24,40,76,79,980.00
Less : Adjusted against Fund Transfer to State for Rural Housing	-	-
(B)Total	**38,53,29,80,358.50**	**24,40,76,79,980.00**
Total	**38,53,29,80,358.50**	**24,40,76,79,980.00**

SCHEDULE 7- INTEREST RECEIVED/EARNED

Particulars	2021-22	2020-21
Bank Interest on SBI Account	1,99,306.00	1,49,995.00
Bank Interest on SBI Account (Bhikaji Cama)	68,47,991.00	66,33,028.00
Bank Interest on FDR Account	-	1,32,00,463.97
Bank Interest on Bank G HDFC Bank	7,146.00	28,648.80
Bank Interest on SBI Account (Krishi Bhawan)	39,761.00	2,98,91,731.00
Total	**70,94,204.00**	**4,99,03,866.77**

SCHEDULE 8- MISC. RECEIPT

Particulars	2021-22	2020-21
Other receipts	9,86,421.00	1,19,416.00
Unclaimed Creditors Write off	-	2,01,786.00
Security Forfeited	-	2,57,132.00
TOTAL	**9,86,421.00**	**5,78,334.00**

SCHEDULE 9- ESTABLISHMENT EXPENSES

Particulars	2021-22	2020-21
a) Salaries and Wages	4,98,15,407.00	7,38,74,720.00
b) Medical Reimbursement	2,85,150.00	9,82,954.00
TOTAL	**5,01,00,557.00**	**7,48,57,674.00**

SCHEDULE 10- ADMINISTRATIVE & OTHER EXPENSES

Particulars	2021-22	2020-21
ADMINISTRATIVE EXPENSES		
Domestic Travel Expenses	22,11,612.00	11,88,913.00
Electrical Expenses	30,66,463.00	24,13,791.00
Hiring of Conveyance & Vehicle	29,99,704.00	35,25,756.00
Meeting Expenses	87,360.00	9,395.00
Office maintenance / Taxes and duty	41,26,135.00	52,55,309.00
Other Office Expenses	34,40,664.50	22,49,496.88
Postage Expenses	1,48,850.00	62,034.00
Printing & Stationery	4,45,727.00	3,46,252.00
Repairs and Maintenance	38,675.00	2,71,559.00
Telephone Expenses office	1,93,876.00	2,14,844.00
Telephone Expenses Residentials	2,25,510.00	2,14,444.00

Particulars	2021-22	2020-21
Vehicle Maintenance	4,95,567.00	8,22,103.00
Rent rates & Taxes	97,66,287.00	2,04,40,821.00
Statutory Auditor Remuneration	80,240.00	1,60,480.00
	2,73,26,670.50	**3,71,75,197.88**
RESEARCH AND DEVELOPMENT EXP.		
Training	85,88,805.00	21,89,598.00
Tech. Development & Research Work	2,55,64,144.00	40,53,625.00
Workshop & Conference	1,43,26,567.00	37,44,811.00
Contribution to Professional Bodies	5,76,190.00	6,29,760.00
Professional Services	5,88,07,841.00	1,53,45,061.00
	10,78,63,547.00	**2,59,62,855.00**
PUBLICATION, ADVERTISEMENT AND PUBLICITY		
Publication	-	-
Advertisement & Publicity	9,49,626.00	12,00,665.00
Books , Periodicals & Audio Visual Materials	3,204.00	3,204.00
	9,52,830.00	**12,03,869.00**
STAs,PTAs, AND NQMs		
Honorarium to NQMs	3,13,48,163.00	1,35,51,000.00
Traveling Expenses of NQMs	1,73,68,845.00	1,14,18,675.00
Payment to State Technicals Agencies	6,86,61,274.00	8,33,19,505.00
Dev & Maintenance of e- procurement	1,86,059.00	4,94,68,377.00
Development and Maintenance of Online Management system	6,99,21,849.00	2,63,86,000.00
	18,74,86,190.00	**18,41,43,557.00**
TECHNICAL ASSISTANCE FROM ADB ASSISTED PROJECT		
Consultancy	34,73,091.00	2,21,39,563.00
	34,73,091.00	2,21,39,563.00
TOTAL	**32,71,02,328.50**	**27,06,25,041.88**

SCHEDULE-11 WORLD BANK ASSISTANCE

Particulars	2021-22	2020-21
World Bank Expenses:		
Independent Verification of performance and F.A.	-	-
Research & Development Exp.	-	9,18,36,398.62
Training	-	3,42,53,202.00
Project Management Consultant	-	1,71,76,055.00
Grants Given to States for Purchase of Equipments	-	1,84,37,195.90
TOTAL	**-**	**16,17,02,851.52**

LIST-1 EXPENSES PAYABLE

Particulars	2021-22	2020-21
ADMINISTRATIVE EXPENSES PAYABLE:-		
Salary Payable	37,53,365.00	-
Domestic Travel Expenses Payable	3,399.00	50,691.00
Electricity Expenses	1,14,130.00	1,04,530.00
Hiring of Vehicle Payable	4,26,916.00	2,44,820.00
Audit Fee Payable	80,240.00	80,240.00
Other Office Exp. Payable	4,509.00	68,026.00
Repair & Maintenance Payable	2,500.00	4,952.00
Telephone Office Payable	23,313.00	12,796.00
Honoraium to NQM Payable	2,75,000.00	-
Travelling Exp. To NQM Payable	1,52,720.00	-
Professional Service Payable	46,33,889.00	-
Office Maintenance, taxes & duties. Payable	2,21,894.00	5,50,122.00
Vehicle Maintenance	26,008.00	81,850.00
TOTAL(A)	**97,17,883.00**	**11,98,027.00**
ESTABLISHMENT EXPENSES PAYABLE:-		
Leave Salary and Pension contribution Payable	50,14,100.00	26,88,141.00
TOTAL(B)	**50,14,100.00**	**26,88,141.00**
WORLD BANK EXPENSES PAYABLE:-		
World Bank Expenses Payable	-	-
TOTAL(C)	-	-
TDS EXPENSES PAYABLE:-		

Particulars	2021-22	2020-21
T.D.S. (Contractor)	73,226.00	81,045.00
T.D.S. (Professional)	48,93,595.00	60,46,135.00
T.D.S. (Rent)	67,896.00	6,01,307.00
T.D.S. (Salary)	-	83,629.00
TOTAL(D)	**50,34,717.00**	**68,12,116.00**
Other EXPENSES PAYABLE:-		
Remittance of Shri Kukreja	21,226.00	21,226.00
Remittance of Toofeeq Ahmad	8,605.00	8,605.00
Remittance of Shri Praveen Kumar	50	50
Remittance of Smt. Vedula	3,720.00	3,720.00
Remittance of Dir (F&A)	432	432
Remittance of Shri Lochan	2,880.00	2,880.00
Remittance of Shri Sunil Kumar	4,560.00	3120.00
Remittance of Dir (P-III)	432	432
Remittance of Shri Navneet Kumar	(15,881.00)	-
Remittance of Shri P.Rajendran	3,500.00	3,500.00
Remittance of Shri Rakesh Kumar	2,160.00	720.00
TOTAL(E)	**31,684.00**	**44,685.00**
Total (A+B+C+D+E)	**1,97,98,384.00**	**1,07,42,969.00**

LIST-2 SUNDRY CREDITOR

Particulars	2021-22	2020-21
Shri Rakesh Kumar	44,262.00	44,262.00
Shri Kailash Bisht	22,152.00	22,152.00
National Quality Monitor (G C Panwar)	1,12,500.00	-
TOTAL	**1,78,914.00**	**66,414.00**

LIST-3 SECURITY AMOUNT (EMD)

Particulars	2021-22	2020-21
Labotex	13,184.00	13,184.00
Carrier Air Conditioning	10,000.00	10,000.00
Vijay Bros	12,137.00	12,137.00
TOTAL	**35,321.00**	**35,321.00**

LIST-4 ADVANCE AND OTHER AMOUNTS RECOVERABLE

Particulars	2021-22	2020-21
ADVANCE		
Advance For Lab Equipments (World Bank)	4,18,843.00	4,18,843.00
Tech . Dev. And Research work (MoRD)	24,57,654.00	6,49,359.00
Workshop & Conference (MoRD)	11,210.00	11,210.00
Research & Development	68,91,463.00	68,91,463.00
Advance for Training	15,04,593.00	15,04,593.00
Advance for Training(W.B.)	28,03,089.00	28,03,089.00
Advance for Project Mang Consultants	1,26,629.00	1,26,629.00
Total	**1,42,13,481.00**	**1,24,05,186.00**

LIST-5 AMOUNTS RECOVERABLE

Particulars	2021-22	2020-21
OTHER AMOUNTS		
Ashok Tourist Service Station	14,270.00	14,270.00
M.T.N.L	75,242.00	75,242.00
Total	**89,512.00**	**89,512.00**

National Rural Infrastructure Development Agency

SCHEDULES FORMING PART OF BALANCE SHEET AS AT 31.03.2022

SCHEDULE 3 - FIXED ASSETS

DESCRIPTION		GROSS BLOCK					DEPRECIATION				NET BLOCK	
	Rate of Depreciation	Cost/valuation As at beginning of the year (01.04.2021)	Additions during the year		Adjustment during the year	Cost/valuation at the year end (31.03.2022)	As at the beginning of the year (01.04.21)	Addition for the year	Adjustment for the year	Total up to the Year-end	As on 31.03.2022	As on 31.03.2021
			Less than 180 days	More than 180 days								
A. Fixed Assets:												
1. Office Accommodation	10.00	8,09,24,072.00	70,00,000.00		0.00	8,79,24,072.00	6,62,51,142.35	18,17,292.97	0.00	6,80,68,435.32	1,98,55,636.69	1,46,72,929.65
2. Furniture, Fixtures	10.00	1,94,23,401.00	89,600.00	0.00	0.00	1,95,13,001.00	1,61,80,614.86	3,28,758.61	0.00	1,65,09,373.47	30,03,627.53	32,42,786.14
3. Machinery & Equipment	15.00	96,66,397.00	7,38,353.00		0.00	1,04,04,750.00	45,48,225.83	8,23,102.15	0.00	53,71,327.98	50,33,422.02	51,18,171.17
4. Vehicles	15.00	24,75,464.00	15,76,435.00	0.00	0.00	40,51,899.00	16,55,961.18	2,41,158.05	0.00	18,97,119.23	21,54,779.77	8,19,502.82
5. Computer/Peripherals	40.00	1,87,47,648.00	6,99,568.00	97,665.00	0.00	1,95,44,881.00	1,76,25,697.77	6,27,759.69	0.00	1,82,53,457.46	12,91,423.54	11,21,950.23
6. e-Procurement Hardware	40.00	87,25,616.00	0.00	0.00	0.00	87,25,616.00	87,23,763.23	741.11	0.00	87,24,504.34	1,111.66	1,852.77
7. e-Procurement Software	40.00	1,07,978.00	0.00	0.00	0.00	1,07,978.00	1,07,955.07	9.17	0.00	1,07,964.24	13.76	22.93
8. Mobile	100.00	20,81,006.00	0.00		0.00	20,81,006.00	20,81,006.00	0.00	0.00	20,81,006.00	0.00	0.00
TOTAL		**14,21,51,582.00**	**1,01,03,956.00**	**97,665.00**	**0.00**	**15,23,53,203.00**	**11,71,74,366.29**	**38,38,821.75**	**0.00**	**12,10,13,188.04**	**3,13,40,018.04**	**2,49,77,218.78**

For G.K. Sureka & Co.
Chartered Accountants

CA Khurram Javed
Partner

(Pradeep Agrawal)
Director (F&A)

(Ashish Kumar Goel)
Director General

Place : New Delhi
Date: 20.09.2022

Annexure IX D

SIGNIFICANT ACCOUNTING POLICIES

SCHEDULE-12

1. Significant Accounting Policies adopted in the presentation of the accounts are as under: -

a. Accounting Policies(AS-1)

During the year, the agency has followed accrual accounting with applicable accounting principles in India, the accounting standards issued by the ICAI and relevant provisions.

b. Fixed Assets(AS-10)

Fixed assets are stated at cost less depreciation. Cost comprises cost of acquisition, cost of improvement and any attributable cost of bringing the asset to condition of its intended use.

c. Depreciation(AS-6)

Depreciation has been provided on written down value method at the rate as prescribed in Income Tax Act,1961.

d. Grant(AS-12)

Society recognize the Specific Grant-in-Aid in the year of Expenses. Grant-in-Aid are received for the specific purposes i.e. Revenue and purchase of Fixed Assets. The accounting treatment of Revenue is recognized on a systemic basis in the Income and Expenditure Account over the period necessary to match with the related costs which are intended to be, such grant is shown separately as Grant-in-Aid under Income Head.

The accounting treatment of grant for the purchase of depreciable Fixed Assets is shown under capital fund. Such grant is allocated to income over the period and in the proportion in which depreciation to these assets is charged.

Annexure IX E

NOTES TO ACCOUNTS

For the year ending 31st March, 2022

SCHEDULE – 12 (A)

1. The agency has received loan of Rs. 48,819.03 Crore from NABARD for PMAY-G and Rs. 48,819.21 Crore further disbursement to the States up to this year for which utilization certificate of Rs. 34,529.43 Crore has been collected/furnished from respective States up to 31.03.2021.
2. The office Accommodation for which a sum of Rs. 7,88,30,479.00 was expensed in earlier years is pending for registration before the Authority. This Sub Lease Deed is pending with Land and Development Officer, Ministry of Urban Development, Nirman Bhawan, New Delhi for which Request letter has been sent to NBCC by the society.
3. Interest Certificate of State Bank of India shows a saving bank account in the name of National Rural Infrastructure Development Agency on which saving interest of Rs. 34.84 lakh has been received. As per explanation, the same has been opened for States under PMGSY FUND and accordingly not considered in the Books of Accounts of National Rural Infrastructure Development Agency.
4. As per the term and conditions, prescribed in Letter of Grant by Ministry of Rural Development, Grants to the respective states under scheme of Pradhan Mantri Awas Yojna–Gramin (PMAY-G) are of revenue nature, the expenditure of which shall be shared in the ratio of 60:40 by Centre and beneficiary States respectively but we are not able to obtain sufficient information and documents necessary for this purpose whether matching shares by respective states have been contributed or not.
5. Advance payments are outstanding over the years due to non-receipts of Utilization Certificates / Related Bills.

S.No.	Particulars	2020-21	Addition	Deletion	2021-22
1	Advance For Lab Equipments (World Bank)	4,18,843.00	-	-	4,18,843.00
2	Tech. Dev. And Research work (MoRD)	6,49,359.00	20,58,000	2,49,705	24,57,654
3	Workshop & Conference (MoRD)	11,210	-	-	11,210.00
4	Research & Development	68,91,463	-	-	68,91,463
5	Advance for Training	15,04,593	-	-	15,04,593

S.No.	Particulars	2020-21	Addition	Deletion	2021-22
6	Advance for Training(W.B.)	28,03,089	-	-	28,03,089
7	Advance for Project Management Consultants (W.B)	1,26,629	-	-	1,26,629
	Total	**1,24,05,186**	**20,58,000**	**2,49,705**	**1,42,13,481**

There is a deficit of Rs.1.97 Crore in the Income and expenditure accounts during the Financial Year 2021-22 as compared to deficit of Rs.12.90 Crore incurred during the previous Financial Year 2020-21. This deficit is mainly related to the following factors: Decrease in receipt of Interest Income by Rs. 4.28 Crore, Excess of Grant in Aid received & Interest paid to NABARD by Rs.1410.33 Crore, Increase in expenditure under some heads viz. Payment to STA by Rs.33.43 Lacs.

For National Rural Infrastructure Development Agency

CA Khurram Javed
Partner

(Pradeep Agrawal)
Director (F&A)

(Ashish Kumar Goel)
Director General

Place : New Delhi
Date: 20.09.2022

Annexure IX F

RECEIPT AND PAYMENT ACCOUNT FOR THE YEAR ENDED MARCH 31st, 2022

RECEIPT	2021-22	2020-21	PAYMENT	2021-22	2020-21
Opening Balance			Capital Account		
Cash	-	-	Fixed Assets purchased	1,02,01,617.93	43,66,063.00
Bank Balance	4,60,92,609.24	2,66,91,397.30		-	-
Fixed Deposit	66,59,107.28	11,36,40,513.04		-	-
Grant from MoRD			Other Expenditure		
a) For Expenditure	38,66,54,755.50	36,04,43,305.00	Establishment Expenses	4,77,74,598.00	7,48,57,674.00
	-	-	Administrative Expenses	31,35,47,755.50	26,51,36,288.88
	-	-	World Bank Expenses	-	16,17,02,851.52
b) For Rural Housing loan from NABARD	-	1,99,99,80,00,00	For Rural Housing loan from NABARD	-	1,99,99,82,20,100.00
c) For RH loan payment of interest to NABARD	38,14,63,25,603.00	24,04,72,36,675.00	For RH loan payment of interest to NABARD	38,17,97,11,484.00	24,07,63,79,629.00
d) For Interest received from NABARD Loan A/c	-	-			
Other Income			TDS of previous year paid	68,12,116.00	3,67,143.00
Interest Income	70,94,204.00	4,99,03,866.77		-	
Other Receipts		-	Security Deposit Given	-	2,57,132.00
					-
	-	-	Other Advances	18,08,295.00	-3,76,95,125.00
Amount Recovered	3,19,599.00	-1,50,615.12	Closing Balance		
			Cash	-	
Misc. Receipts	9,86,421.00	5,78,334.00	Bank Balance	2,42,37,694.24	4,60,92,609.24
			Fixed Deposit	1,00,38,735.28	66,59,107.28
	38,59,41,32,295.95	2,24,59,63,43,475.92		38,59,41,32,295.95	2,24,59,63,43,472.92

For G.K. Sureka & Co.
Chartered Accountants

For National Rural Infrastructure Development Agency

CA Khurram Javed
Partner

(Pradeep Agrawal)
Director (F&A)

(Ashish Kumar Goel)
Director General

Place : New Delhi
Date: 20.09.2022

Annexure IX G

INCOME AND EXPENDITURE ACCOUNT FOR THE YEAR ENDED MARCH 31st, 2022

INCOME	Sch	2021-22	2020-21
Grant in Aid	6	38,53,29,80,358.50	24,40,76,79,980.00
Interest Received	7	70,94,204.00	4,99,03,866.77
Misc. Receipt & Prior	8	9,86,421.00	5,78,334.00
Period Adjustment			
TOTAL (A)		38,54,10,60,983.50	24,45,81,62,180.77
EXPENDITURE			
Interest paid to NABARD RH		38,17,97,11,484.00	24,07,63,79,629.00
Establishment Expenses	9	5,01,00,557.00	7,48,57,674.00
Administrative Expenses	10	32,71,02,328.50	27,06,25,041.88
World Bank Project Assistance	11	-	16,17,02,851.52
Depreciation	3	38,38,821.75	35,80,445.23
TOTAL (B)		38,56,07,53,191.25	24,58,71,45,641.63
Balance being Excess of Income/ Expenditure over Exp./Income (A-B)		(1,96,92,207.75)	(12,89,83,460.86)
Transferred to Capital/Corpus Fund		(1,96,92,207.75)	(12,89,83,460.86)

For G.K. Sureka & Co.
Chartered Accountants

For National Rural Infrastructure Development Agency

CA Khurram Javed
Partner

(Pradeep Agrawal)
Director (F&A)

(Ashish Kumar Goel)
Director General

Place : New Delhi
Date: 20.09.2022

National Rural Infrastructure Development Agency

Ministry of Rural Development, Government of India

5th Floor, 15 NBCC Tower, Bhikaji Gama Place, New Delhi - 110 066

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