



GOVERNMENT OF PAKISTAN

MINISTRY OF COMMUNICATIONS

Presentation At 14th Transport Sector Coordinating
Committee (TSCC) of CAREC



Financing Road Asset Management Revisiting Road Fund

by

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Road As An Asset

As an agency evaluates its assets, key questions to consider are:

- 1. What was the past condition and performance of our assets? What is the current and predicted future condition and performance of our assets?**
- 2. How can we best manage our assets in order to least inconvenience the motoring public when we repair or replace these facilities?**
- 3. What are the consequences of not maintaining our assets?**

ROAD MAINTENANCE HISTORY

INTRODUCTION

- **National Highway Authority came into existence in 1991 through an Act of Parliament.**
- **The total length of roads at that time was 6,667 kms and the maintenance allocation was about Rs. 400 million per annum.**
- **The road network inherited by NHA from provinces was in dilapidated condition. The average width of national highways was around 4 to 5 meter.**
- **NHA inherited road network from Provincial Highway Department which was in dreadful condition.**
- **It was then decided that national highway network should be brought to standard carriageway width of at least 7.3 meter and to an international standard.**
- **The maintenance allocation given to NHA was not enough to cater for the Maintenance needs which resulted in creation of huge maintenance backlog.**

ISSUES FACED BY NHA AT THE TIME OF ITS CREATION

- Traffic number increasing rapidly due to economic activity in the country**
- Unchecked / unregulated heavy axles loads moving on national highway network resulting in damage to national highway network**
- Modal shift from rail to road**
- Thinning of Resource Envelope and Time/Cost over-runs.**
- Neglected Essential Maintenance.**
- Non-Commercial Operations.**
- High Transport Costs.**
- Low Safety Standards.**

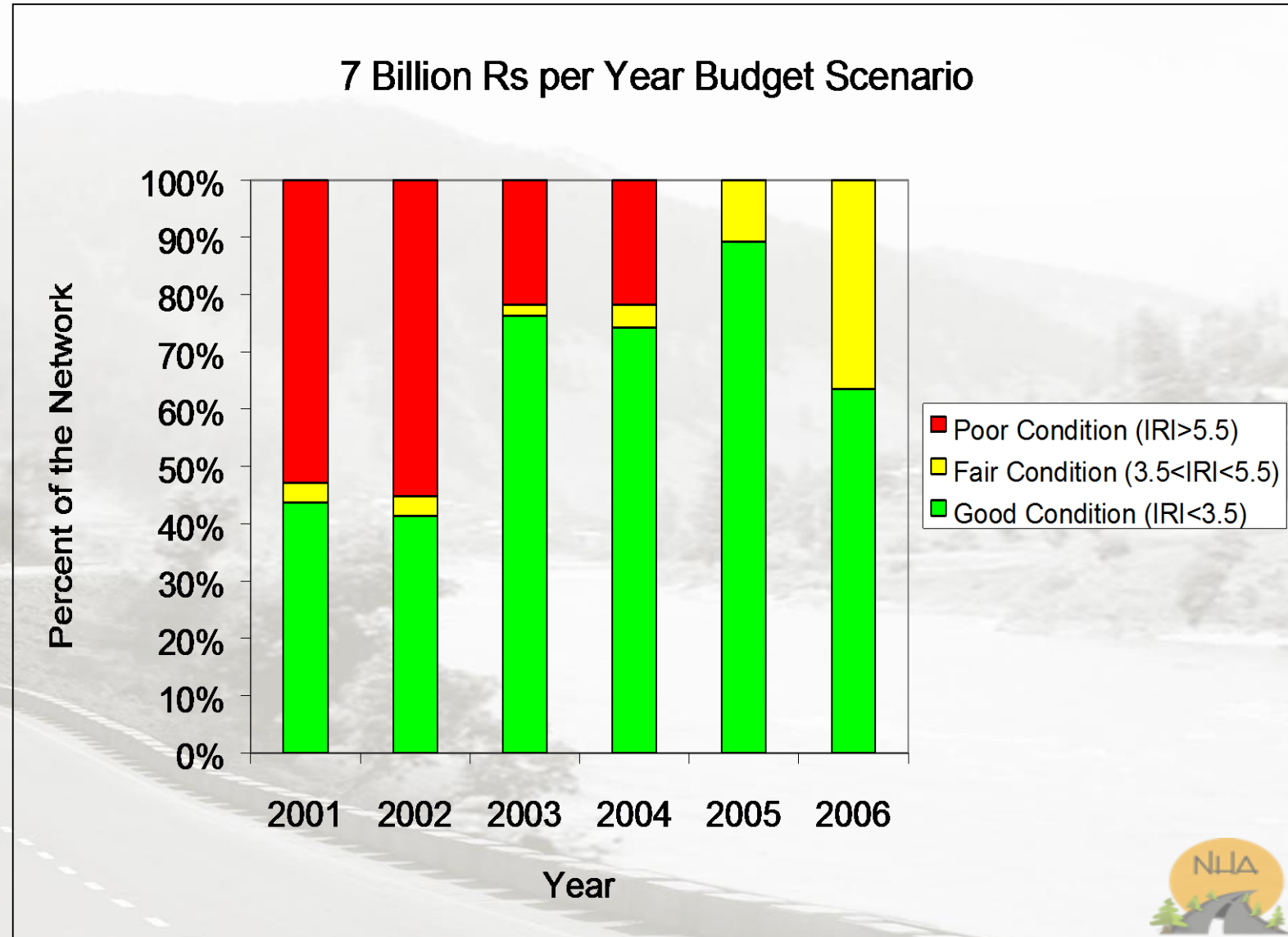
ROAD MAINTENANCE HISTORY

- ❑ **National Highway Board carried out a Road Maintenance Study in 1986 after which NHB took over the maintenance responsibilities**
- ❑ **NHB established a Maintenance Management System using Maintenance Intervention Levels (MIL) system.**
- ❑ **MIL System provided the base for systematic analysis of road maintenance requirements defining maintenance types, defects and level of serviceability.**
- ❑ **The maintenance grant/funds provided to NHB/NHA was about 10% of its demand thus creating a maintenance backlog of 90% every year.**
- ❑ **Maintenance backlog developed over the years due to inadequate maintenance funding resulted in Maintenance Backlog Reduction Program (MBRP/RSP) launched with the assistance of the world bank at a cost of Rs. 5 Billion.**
- ❑ **In 1996 it was felt that maintenance budget is insufficient to meet the growing the network requirement of national highways.**

NHA STUDY 1998/2000

■ NHA/World Bank carried out a study in 1998 (updated in year 2000) to determine the funds requirement for preservation and improvement of existing network of NHA through Stable Off-Budget Financing Mechanism.

■ The study reveals that annually Rs. 7 Billion are required to maintain the national highway network in good condition.



INADEQUATE MAINTENANCE FUNDING IMPLICATIONS

- **VOC losses will increase steeply and are expected to reach alarming level in the coming years.**
- **Network portion requiring periodic overlay shall have to be rehabilitated at thrice the cost.**
- **Delayed Maintenance now, such as Periodic (Functional/Structural Overlay) costing Rs 5 Million per Kilometer will be converted to rehabilitation/reconstruction at a cost of Rs. 16-22 million per km, which means more maintenance backlog and more loan/credit required in a cyclic manner.**

Background of Asset Management

1. In 1997, an international seminar was held by National Highway Authority with the assistance of World Bank and Ministry of Finance to explore different avenues pertaining to maintenance of National Highway Network.
2. The concept of Off-Budget-Financing for maintenance of NHA Network was presented and unanimously adopted.
3. April 1997- Country Workshop recommended creation and structure of Road Fund and Management Board.
4. In light of above, a Road User Charges/Road Fund Study was carried out in 1998 by Wilbur Smith Associates.
5. The study made the following recommendations regarding road user tariffs commensurate to service provided to the road users:
 - a) Tolling of National Highways
 - b) Transit fees
 - c) Fuel levies
 - d) Commercial use of Right of Way (ROW)
 - e) Establishment of Road Fund.

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Background of Asset Management

6. **July 1999-GOP approved policy on establishment of Road Fund.**
7. **Jan 2000 – CE/Cabinet Committee decision**
“Road Fund be constituted with details to be finalized by Ministry of Finance and Communications”
8. **Draft Legislation (Road Fund Administration Ordinance 2000) prepared by NHA and commented by World Bank, to be re-submitted to MOC.**
9. **June 2000 – Interim Road Fund Management Board notified by MOF. Modalities of road Fund were to be finalized.**
10. **Provinces objected to the creation of Road Fund and it was decided by MOF/MOC that NHA may be allowed to have a similar version of Road Maintenance Fund at NHA level where all the revenue thus generated by NHA will be dedicatedly utilized to cater for the needs of maintenance.**

INITIATIVE TAKEN BY NHA FOR OFF-BUDGET FINANCING

- **Keeping an eye on the challenges of 21st century NHA proposed to establish Road Asset Management Division (RAMD) in order to promote the requirements that have arisen on account of commercialization of roads and **off-budget** financing and creation of RAMD was **approved** in the 92nd Executive Board Meeting in **March 2000**.**
- **In order to pursue off-budget financing, NHA took following initiative after creation of RAMD:**
 - ❑ **Tolling of National Highway / Motorway Network**
 - ❑ **Leasing of NHA ROW**
 - ❑ **NOC for Commercial Outlets on Private Land.**
 - ❑ **NOC for Utility Lines.**
 - ❑ **Promotional Displays.**
 - ❑ **Bus Bays on BOT Basis.**
 - ❑ **Getting ROW Mutated in favour of NHA.**

Mission Statement - RAMD

Maintain the National Highway Network to optimal levels at all times & Preservation of National Highways by using the “Fee-for-Service**” Concept and generating appropriate funds for Highway Maintenance.**

Initiatives Taken to Formulate Rules & SOPs

- ❖ **Road Maintenance Fund (RMF) Rules were approved by NHA Executive Board and notified by MOC on 21st August 2003 namely “ Road Maintenance Account Rules”.**
- ❖ **Standard Operating Procedure (SOP) for Road Maintenance Account (RMA) was approved by NHA Executive on 29th May 2002**
- ❖ **SOP for RMA was amended in 2005 and approved by NHA Executive Board on 5th April 2005 as Annexure II of NHA Code 2005.**
- ❖ **Rules and SOP for Preservation and Commercial Use of ROW was approved by NHA Executive Board on 29th May 2002.**
- ❖ **SOP for Preservation and Commercial Use of ROW was amended in 2004 and approved by NHA Executive Board on 15th August 2005 as Annexure IV of NHA Code 2005.**

Road Maintenance Fund (RMF) Rules were approved by NHA Executive Board and notified by MOC on 21st August 2003 namely “Road Maintenance Account Rules. Salient are as under:

Rule 3

- (1) National Highway Authority shall maintain a commercial non-lapsable account in Pakistani **scheduled banks** designated as **Roads Maintenance Account (RMA)**.
- (2) All revenues from road users accruing to the NHA shall be expeditiously transferred into the Roads Maintenance Account, namely:-
 - (a) Tolls on roads and bridges;
 - (b) road use related fines (e.g., overloading, traffic offence);
 - (c) axle load charges;
 - (d) supplementary heavy vehicle fee;
 - (e) international transit fees; and
 - (f) border fees.
- (3) NHA shall also transfer all revenues accruing to it, into the RMA, namely:-
 - (a) Charges for commercial use of right of way;
 - (b) profits on bank deposits and income on investment of moneys
 - (c) annual maintenance grant from the Federal Government;
 - (d) maintenance funds provided by international donor agencies;
 - (e) loans secured to finance any maintenance work shortfall; and
 - (f) endowments and donations for maintenance and road safety from any organization, group or person.

Roads Maintenance Account Rules 2003

Rule 9 - Eligible Expenditures.-

(1) Eligible expenditures from the Roads Maintenance Account shall only comprise expenditures for the following, namely:-

- (a) Maintenance Plan;
- (b) rehabilitation of existing network assets of the National Highway Authority which have acceptable net present value and economic rates of return;
- (c) geometric Improvements of the existing network assets of the National Highway Authority up to a maximum of six per cent of annual revenues;
- (d) highway safety improvements up to a maximum of five per cent of annual revenues;
- (e) establishment of new toll plazas with automated electronic toll and traffic management system, access control, and weigh stations up to a maximum of two and half per cent of annual revenues; and
- (f) expenditure related to corridor management up to a maximum of one and half per cent of annual revenues including related surveys and studies.

(2) The works, goods and services referred to in sub-rule (1) shall be procured through competitive contracting procedures pursuant to the requirements of the Financial Manual, the National Highway Authority Code and the Conditions of the contract between a contractor or, as the case may be, consultant or supplier and the National Highway Authority.

(3) The Roads Maintenance Account resources shall not be withdrawn to bridge finance non-eligible expenditures or be allocated or re-appropriated for the development projects and capital works.

Roads Maintenance Account Rules 2003

Rule 10 - Charges on Roads Maintenance Account

(1) Eligible expenditures from the Roads Maintenance Account shall have the following priority, namely:-

- (a) First charge: Routine and periodic maintenance.**
- (b) Second charge: Rehabilitation.**
- (c) Third charge: Geometric Improvements and highway safety improvements.**
- (d) Fourth charge: New toll plazas and weigh stations.**
- (e) Fifth charge: Corridor management**

MISSION STATEMENT OF NHA FOR ROAD MAINTENANCE / PRESERVATION

- **To maintain and operate the National Highways and Strategic Roads to minimize the road transportation costs, provide driving comfort and safety to the road users at all times, and preserve the asset investment in roads, bridges and appurtenances cost effectively.**

NHA EXISTING ROAD MAINTENANCE

- **NHA has embarked upon a program of Resource and Road Asset Management in its endeavors to improve the serviceability and value for money that it requires from its highway network.**
- **This is the modern approach to road management much favored in the countries where budgets for the care and repair of roads are always in deficit.**
- **Every road network has a Book Asset Value at the start of the year. This is made up of:**
 - ❑ **The value of the existing pavements as constructed, and then down valued according to (i) their present condition and (ii) the cost of putting them in the minimum acceptable condition.**
 - ❑ **The stock value of the structures based upon their replacement value.**

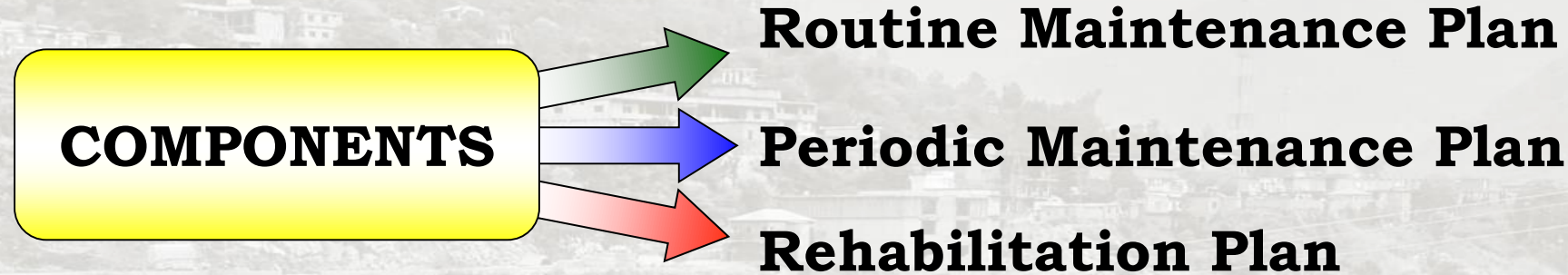
NHA EXISTING ROAD MAINTENANCE

- **Based upon available resources and the priorities of serviceability, an annual program of care, conservation and upgrading of the road network then takes place. This program of works is the investment being made in the road network.**
- **An analysis at the end of the following year of the road conditions and hence the prevailing asset values-reflects the downward valuation of roads that have deteriorated further (due to no intervention) and the upward valuation of those sections receiving investments in the form of conservation or improvement programs and gives an overall picture of increase or decrease in remaining service life of the road network.**

STRATEGY OF ROAD ASSET MANAGEMENT SYSTEM (RAMS)

- **Conducting Annual Network Analysis Process.**
- **Development of Existing Central Road Databank.**
- **Development of Annual Business Plans.**
- **Target all Maintenance Activities as Investments & Making them to be Cash-Specific.**
- **Developing the current Asset Value of the Network.**
- **Financial and Technical Audit (performance indicators evaluation) for each Annual Maintenance Plan .**

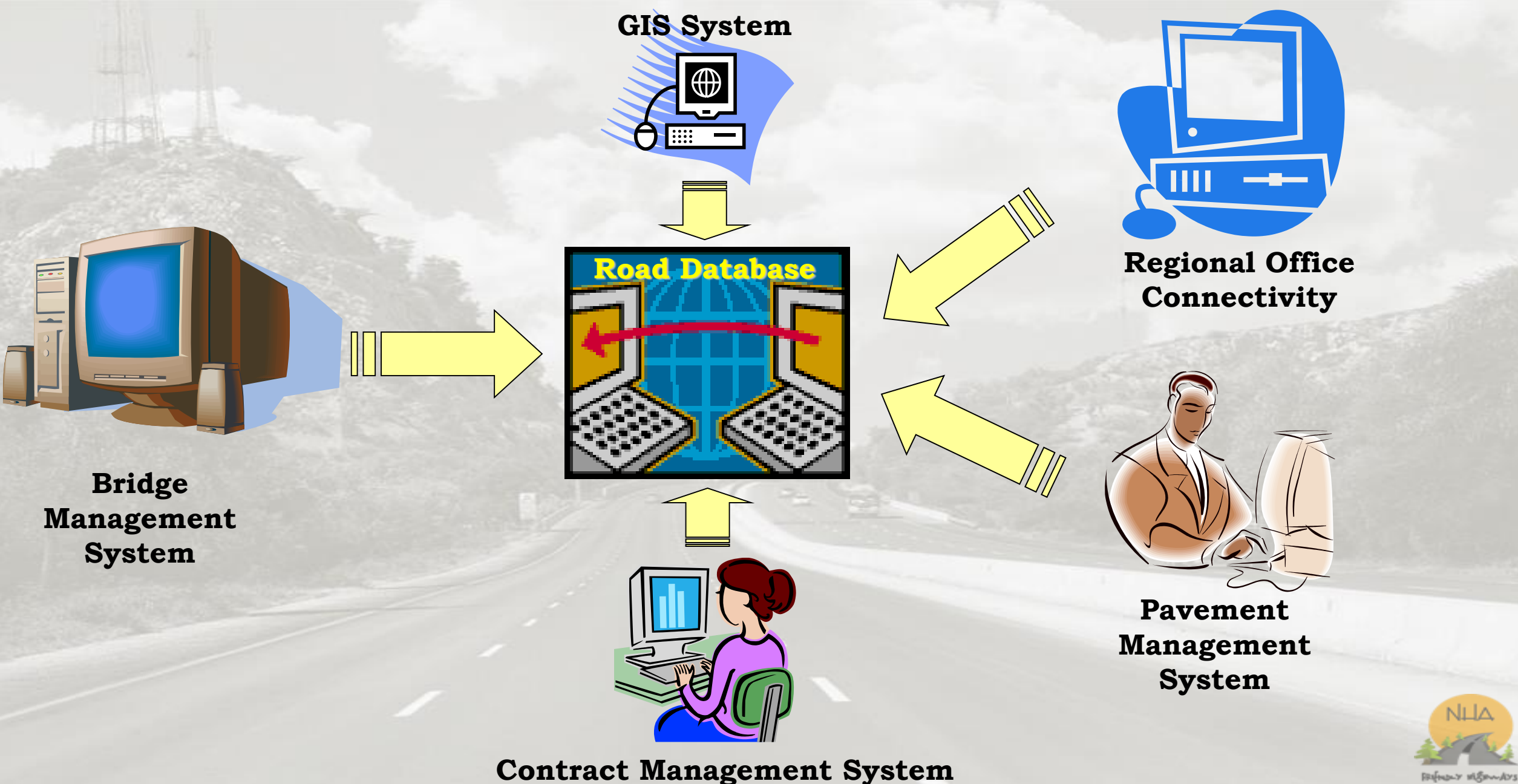
THE ANNUAL MAINTENANCE PLAN



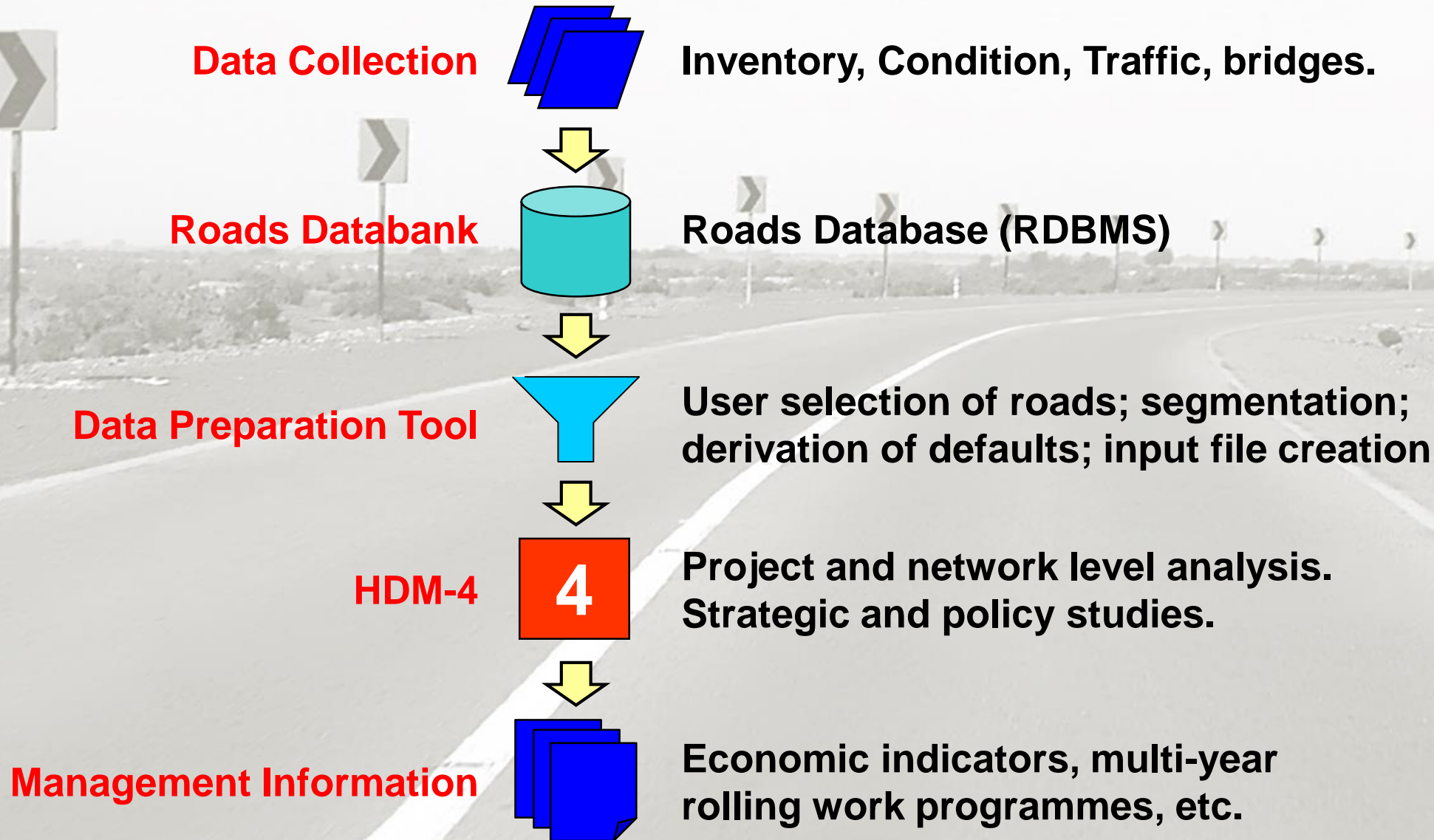
Theme Of Annual Maintenance Plan

- Each ‘Rupee’ spent must be a Carefully considered investment for each kilometer in the long-term conservation of an infrastructure asset.
- All maintenance works will have to be qualified before financing.
- The “Short Term Focused Plan” aimed at achieving the objectives of “Long Term Strategic Plans”

NHA - RAMS DATABASE



Integration within a Road Management System



ROAD MAINTENANCE FUND (RMF)

The “Short Term Focussed Plan” Aimed at Achieving the Objectives of “Long Term Strategic Plans”.

PRIORITIZATION CYCLE

ANNUAL NETWORK ANALYSIS

- Strategic
- Network &
- Project Level

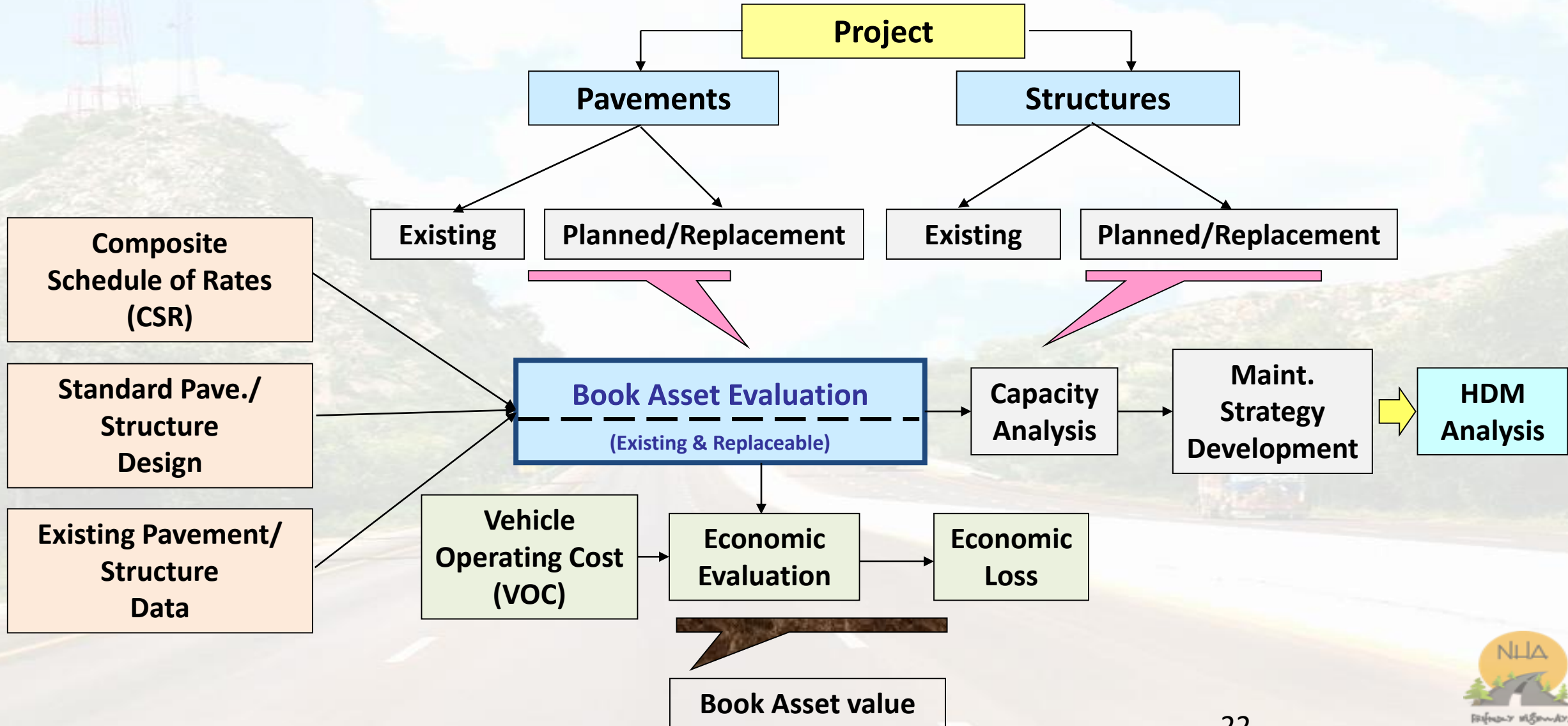
APPLICATION OF
HDM MODEL

ANNUAL
BUSINESS
PLAN

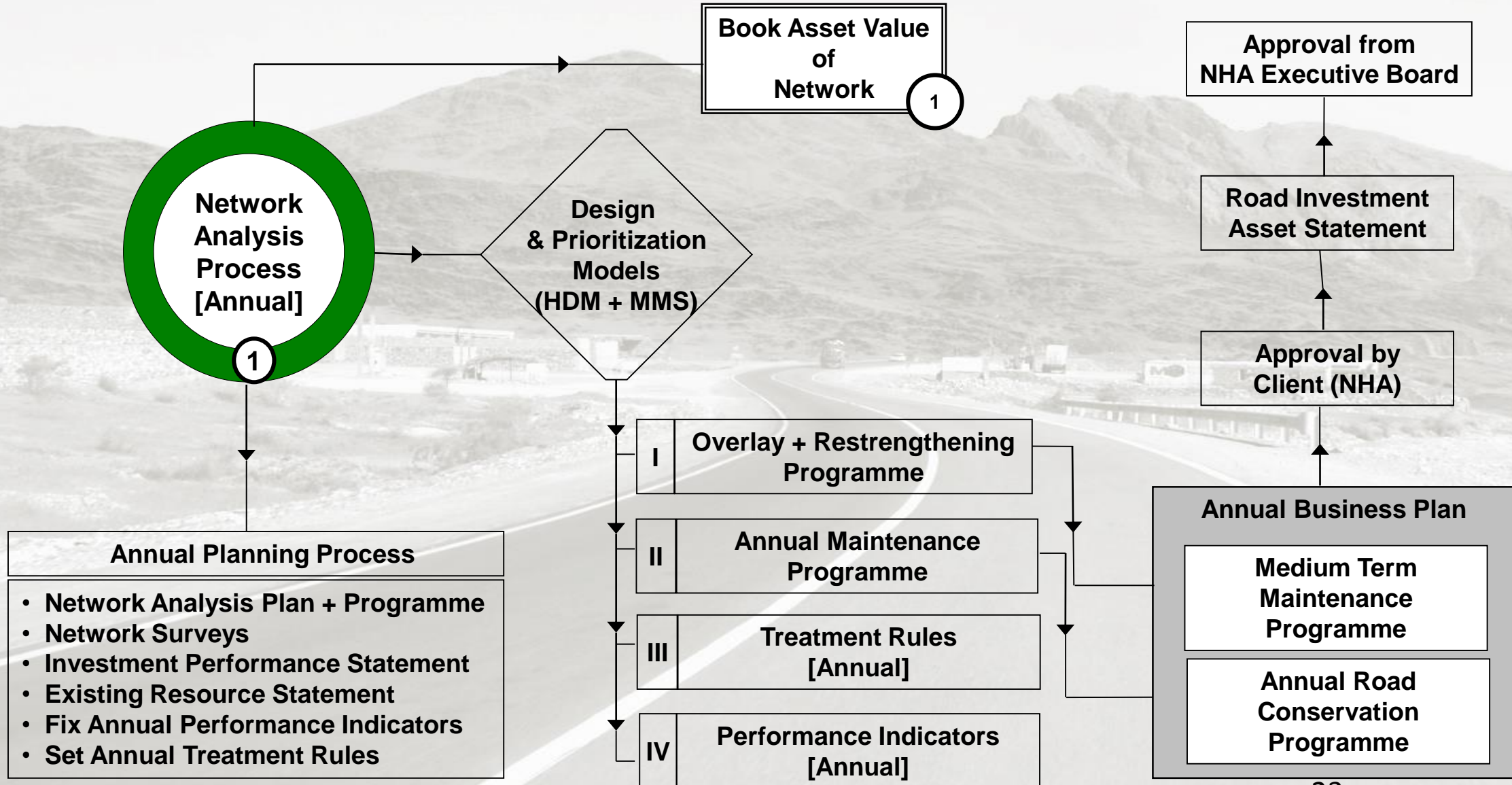
Central data Bank

BUDGET

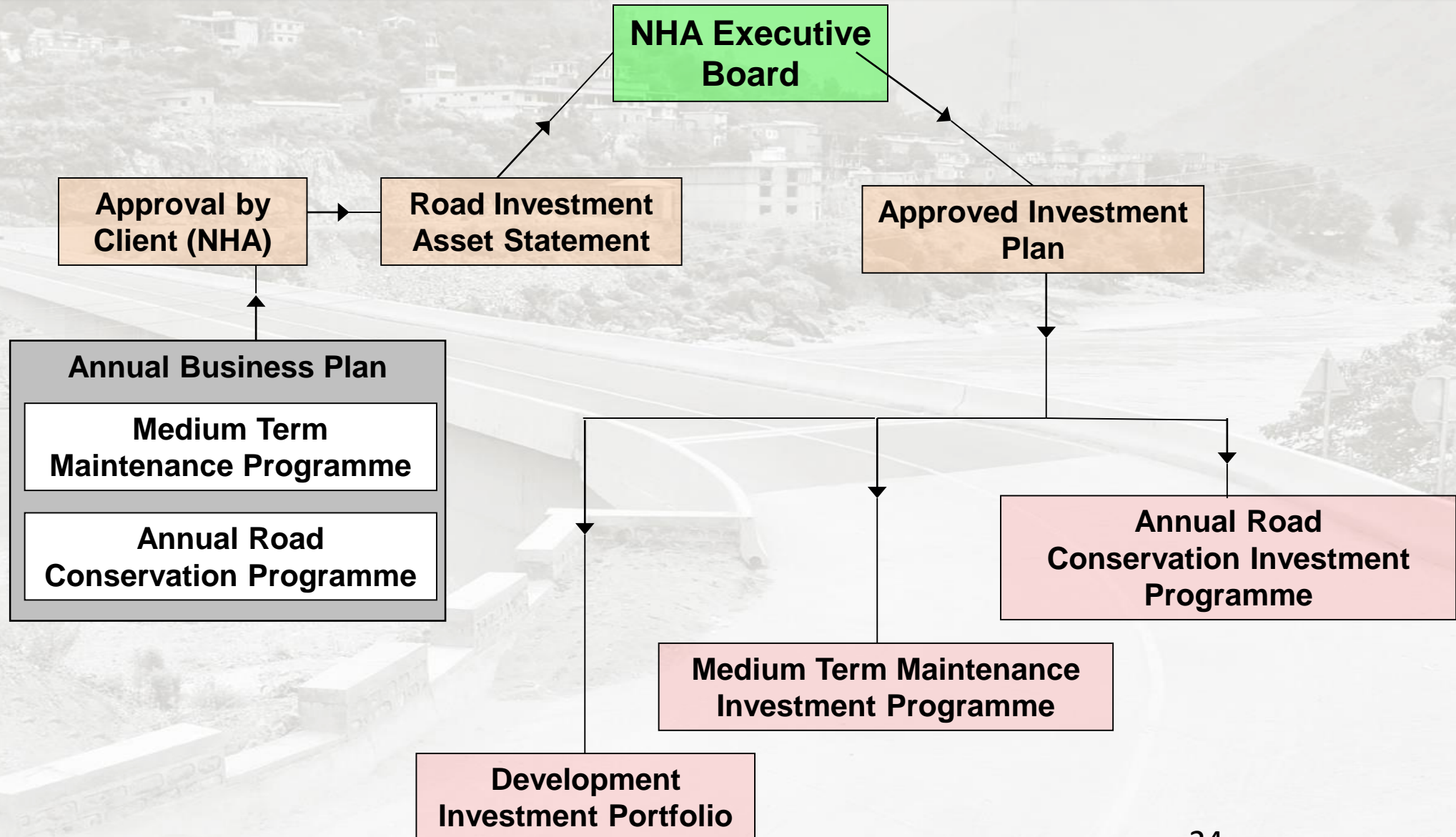
ROAD MAINTENANCE FUND (RMF) ASSET EVALUATION PROCESS



R.A.M.S. - Flow of Activities



R.A.M.S. - Flow of Activities



Advantages of Road Management System

- **Money spend on need basis.**
- **Reduces overall vehicle operating cost, thus by improving road network condition and reducing average road roughness.**
- **Reduction in average travel time.**
- **Reduction in rehabilitation cost and increase in investment particularly routine & preventive maintenance.**
- **Effective and efficient monitoring of maintenance works and its requirement.**

Disadvantages of Road Management System

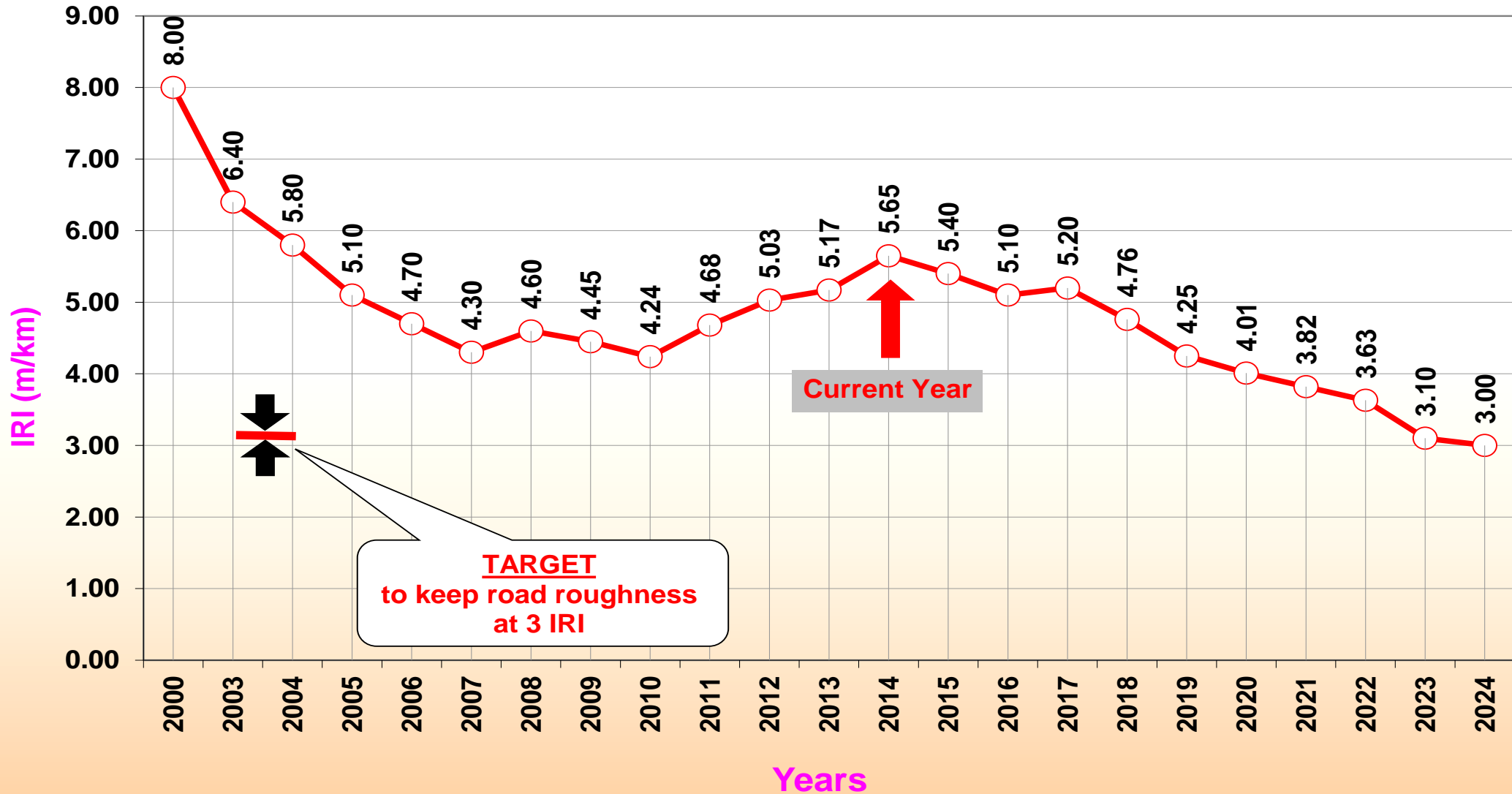
- **Centralized System in which all stakeholders needs to be brought into the loop which is a difficult task.**
- **The funding available is always less than requirement, therefore, maintenance backlog is created.**

RAMS ASSESSMENTS SINCE CREATION OF RMA RULES

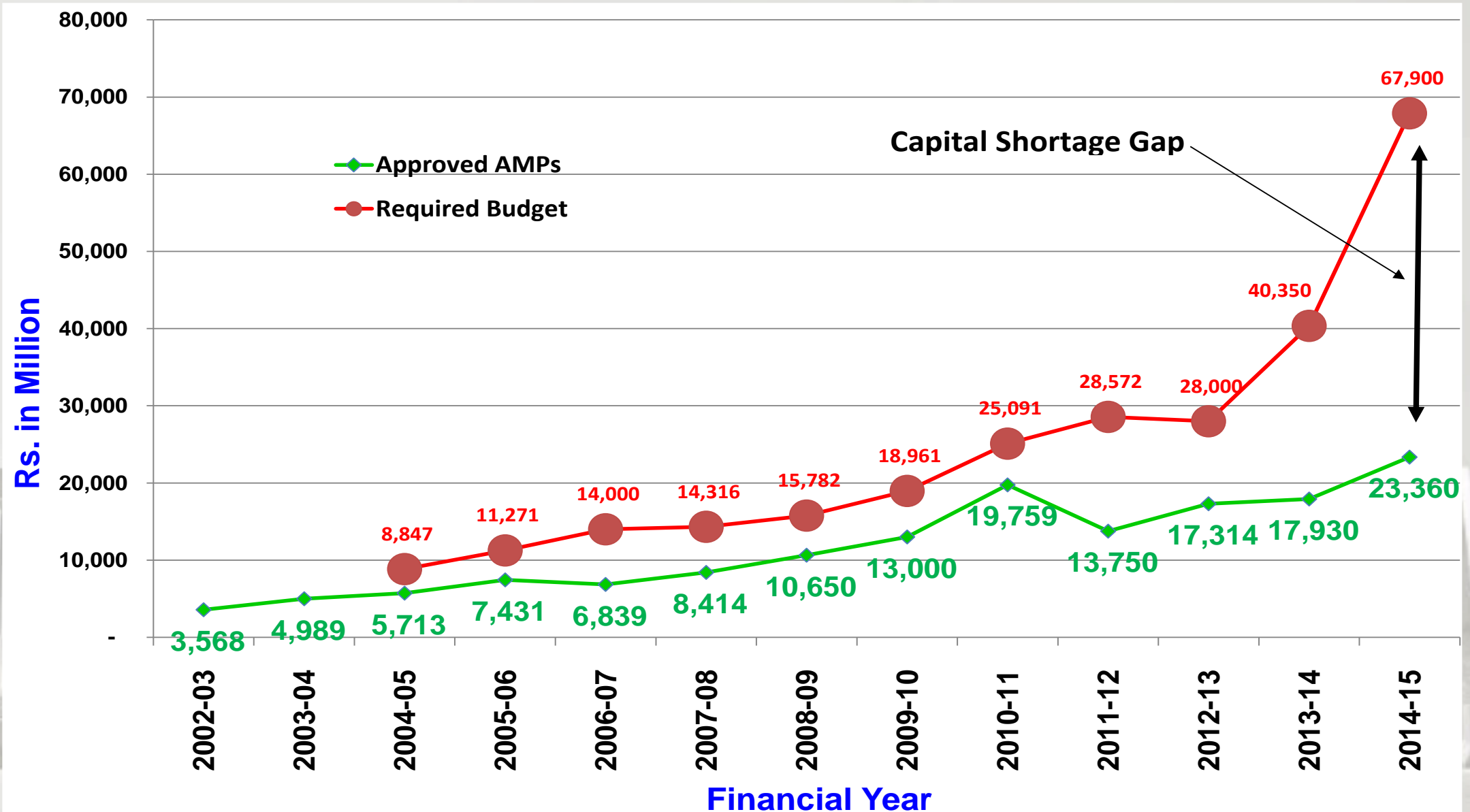
Constructed by:

USMANI ASSOCIATES
OF PAKISTAN (2010)

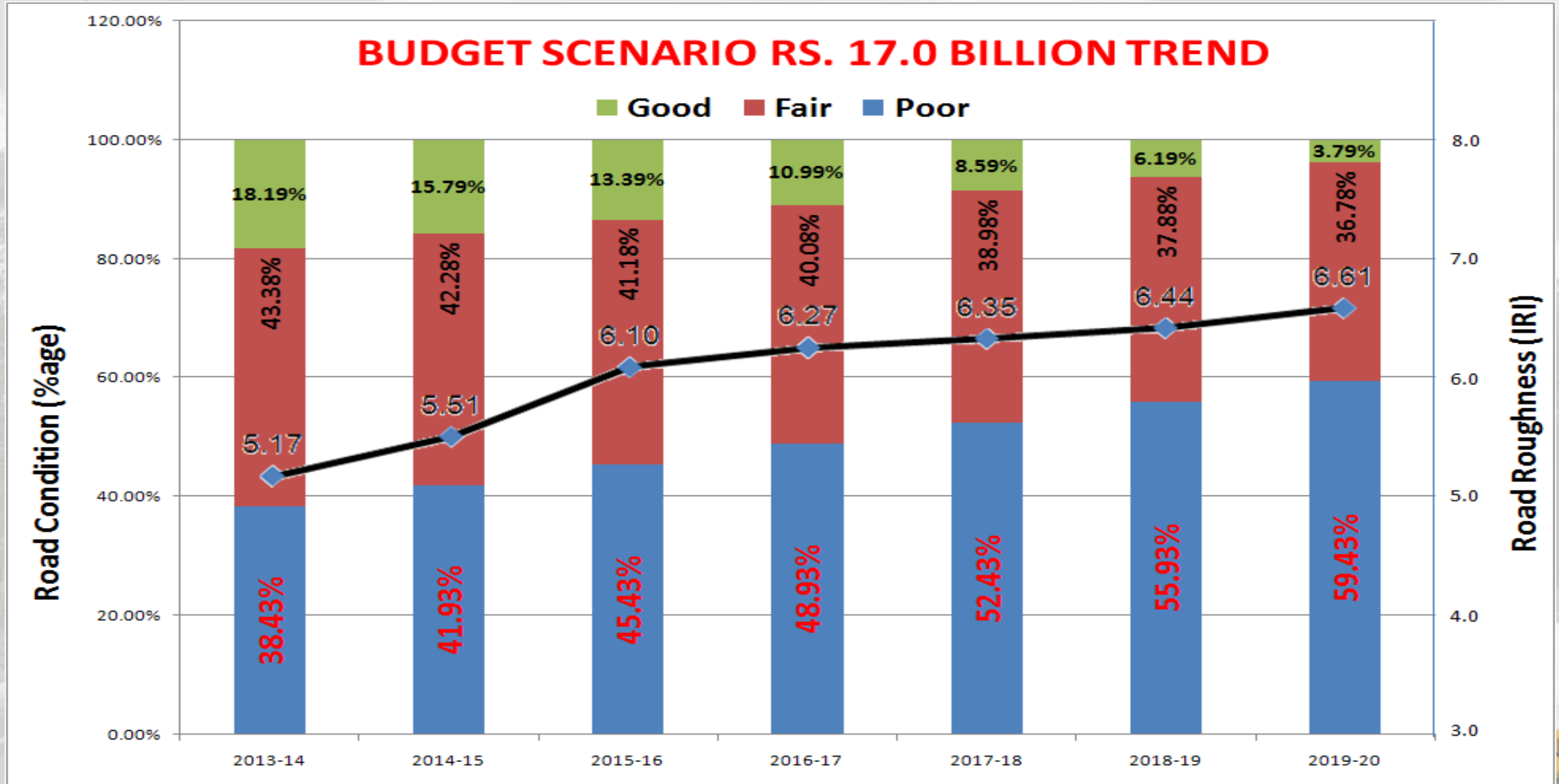
Average IRI (m/km) of NHA Network



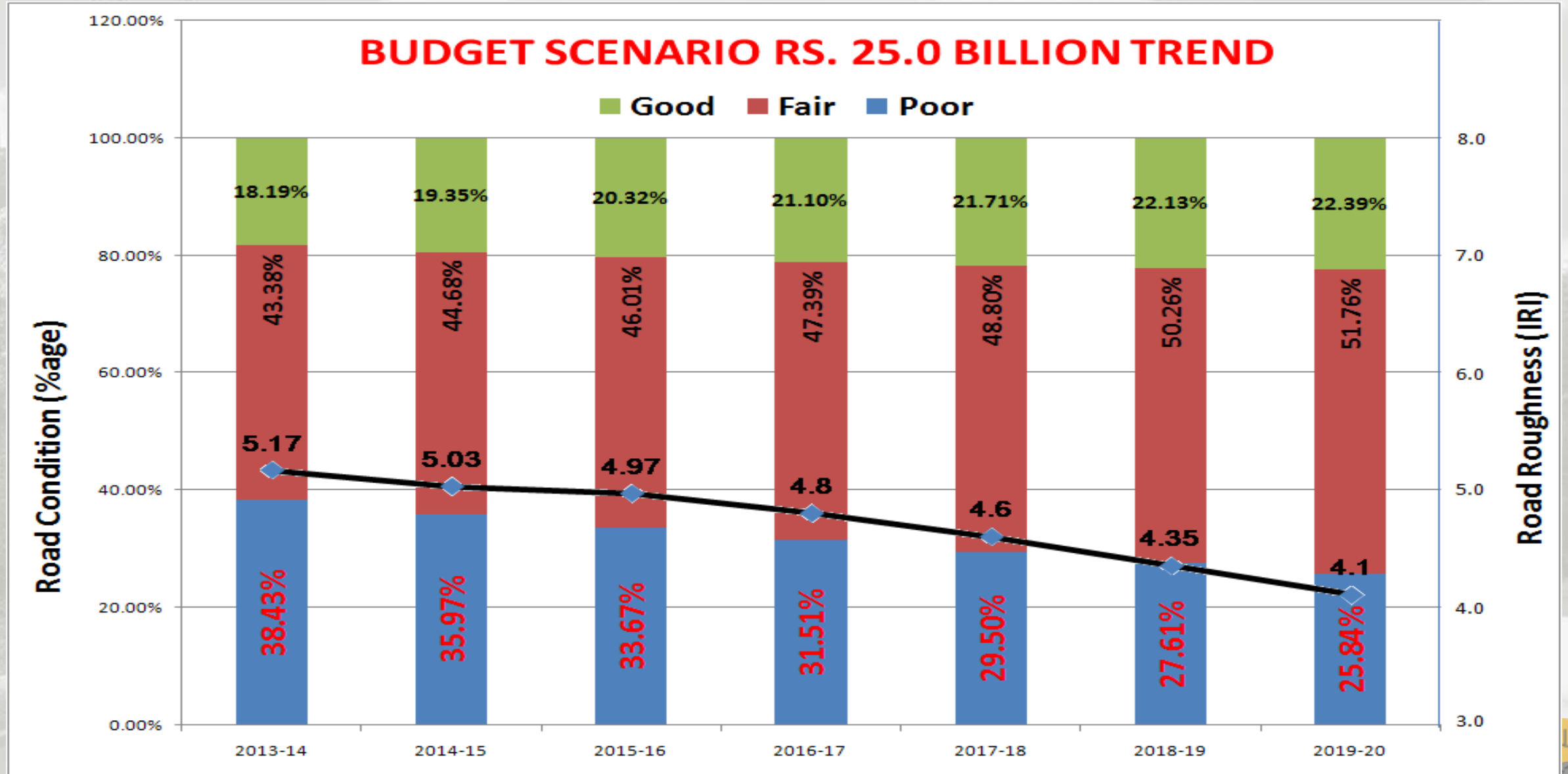
Budget Requirements vs. Budget Allocation



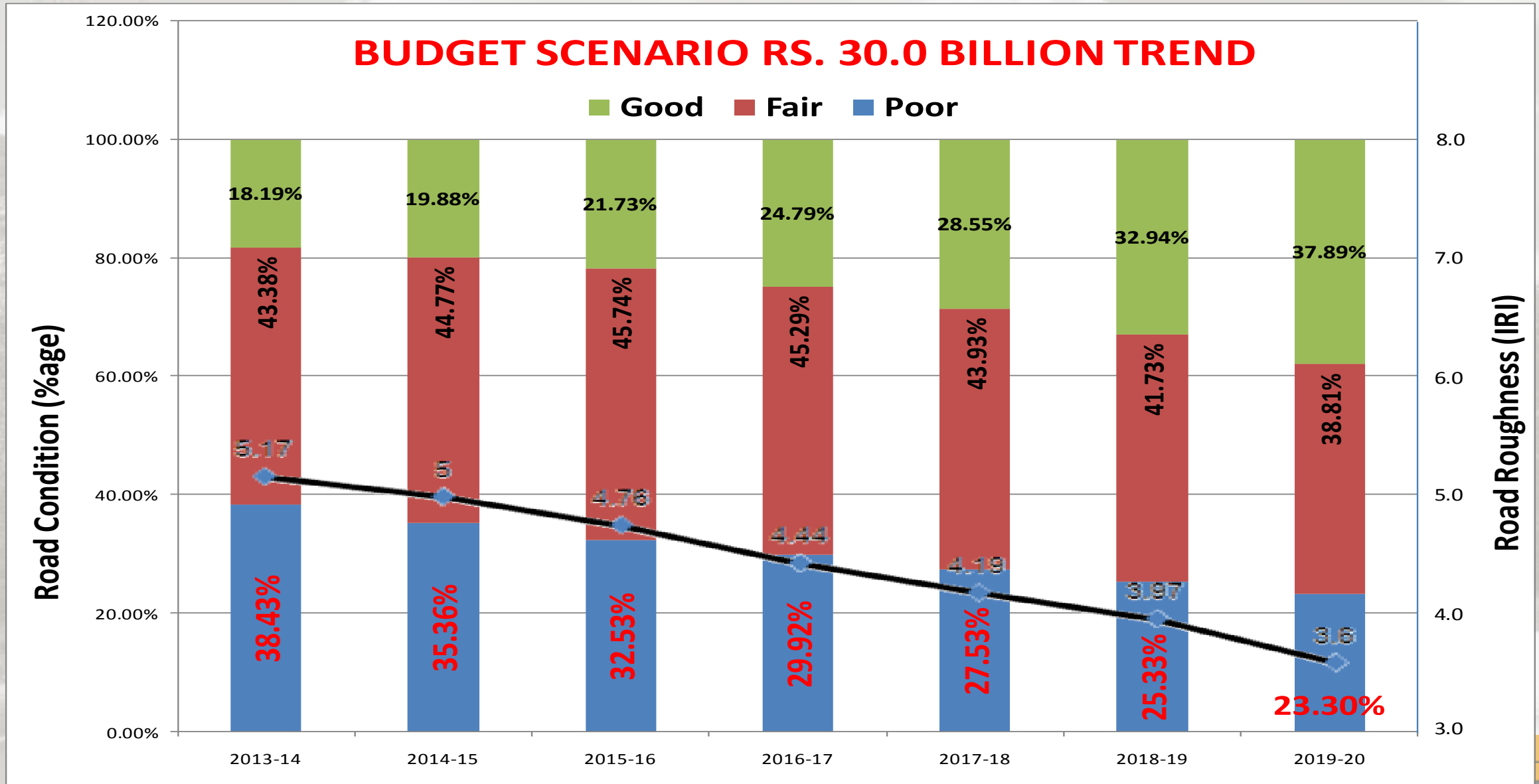
Consequences to the Network



Consequences to the Network



Consequences to the Network



Maintenance Requirements

Unconstrained demand of NHN for <u>FY 2014-15</u>	Rs. 60 Billion
Current Financial Resources available	Rs. 24 Billion
Backlog of Current Year	Rs. 36 Billion
No. of Km (<u>Poor to Very Poor</u>)	3,486 Km
Current Cost of Rehabilitation of <u>3,486</u> Km	Rs. 209.16 Billion
With just Periodic Intervention as per AMP	1,100 Km
Next 5 years annual requirement (<u>Maintenance Only</u>)	Rs. 30.00 Billion

RAMS ASSESSMENTS SINCE CREATION OF RMA RULES

Conclusion

- ❑ Road Maintenance Account (RMA) performed well till 2010 due to following reasons:
 - i. RMA fund utilized dedicatedly for maintenance schemes
 - ii. Maintenance funds were used extensively for periodic overlays and minimally on rehabilitation / reconstruction schemes.
- ❑ In 2010, funds were diverted from RMA to finance construction projects. Further, 1040 kilometers of NHA network was severely damaged by 2010 flood thus resulting in diversion of two years periodic maintenance financing to restore the damaged road network.
- ❑ Therefore, the network remain neglected, no periodic maintenance was carried out.
- ❑ During last three years, extensive periodic maintenance program has been launched in which 1600 km of NHA network will be overlaid.
- ❑ Rehabilitation program will be dealt separately from RMA.

Thanks for your Time

