An Assessment of Rural Roads in the Philippines from the Context of Resilience and Inclusive Mobility

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Abstract: The National Economic Development Authority (NEDA) has identified the priority areas for development in the country, which include; 1) areas of high poverty incidence, 2) areas that are rapidly developing such as cities, and 3) areas that have been identified to be vulnerable to natural and man-made disasters. The first and last types of areas are usually the most vulnerable and therefore the subject of questions regarding resilience in times of disasters such as Typhoon Haiyan in 2013. The primary means of access for most people residing in such areas are rural roads, both national and local roads. These roads serve as physical links between production and consumption areas and provide access to employment, education and social services. These are also conduits to facilitate disaster response activities to ensure the protection of the communities. This paper examines the state of rural roads in the Philippines in the context of resilience and inclusive mobility. It will establish that rural roads play a significant role not just for disaster resilience but also in supporting the economic development of the local community, particularly tied to poverty reduction by providing access to opportunities including those related to current thrusts in industry, agriculture and tourism. The design, construction and maintenance of rural roads are then discussed including the standards and tools currently being used by responsible agencies. It will highlight the implications of the existing standards and practices on the roles and functions of rural roads. The paper then sets forth recommendations to further improve the state of rural roads in the country.

***Key words*:** rural roads, resilience, inclusive mobility

1. INTRODUCTION

Roads in the Philippines are usually classified according to the government entities administering them. They are classified as national roads, provincial roads, city roads, municipal roads, and barangay roads. National roads are either arterial or secondary. Arterial roads, also known as primary roads, are continuous roads that form part of the main trunk system leading to either primary centers such as major cities and airports or all roads connecting to the primary centers. National roads are classified by function into the following:

a. North-South Backbone – form the main trunkline from northernmost Luzon down to Southern Mindanao, interconnecting major islands;
b. East-West Laterals – roads traversing the backbone and across the islands (about 100 km apart);
c. Other roads of strategic importance – provide direct access to important centers and areas vital for regional development and emergencies.

On the other hand, national secondary roads are those that complement national arterial roads to provide access to other main population and production centers.

A summary of the different classifications with their respective descriptions is given in Table 1.

Table 1. Administrative Road Classification in the Philippines

Road	Description	Administrative Responsibility
National -Arterial -Secondary	Continuous in extent, form part of the main trunk line system; all roads leading to national ports, seaports, parks or coast-to-coast roads	Design, construction, management and maintenance by national government through the Department of Public Works and Highways (DPWH)
Provincial	Those roads that connect one municipality to another municipality and to National Arterial or Secondary Roads; other road as designated by the Province through legislation	Design, construction, and maintenance under the Provincial Engineering Offices (PEOs)
City	Major streets in the city if not provincial or national road; other roads designated by City through legislation	Planning, design, construction and maintenance under city engineering offices
Municipal	Those roads/streets within the municipal town, if not provincial or national roads; other roads designated through local registration	Planning, design, construction and maintenance under municipal engineering offices
Barangay	Classified as penetration roads or farm-to-market roads connecting barangays with each other and to road network of the area; other roads designated by local council.	Routine maintenance by Barangay council through the Barangay Road Maintenance Committee (also referred to as Committee on Public Works/ Infrastructure)

(Source: Maintenance Study in the Philippines, International Labor Organization, 2006)

While Table 1 shows the administrative classifications of roads in the country, there is an even more basic classification of roads other than administrative or functional, that which is based on the location of the roads. Urban roads are those that are found in so-called urbanized areas or areas that are significantly built up or developed such as those found in many cities and municipalities. Rural roads are those found in less developed areas such as agricultural lands, mountains, and other areas (OECD, 1999). In terms of Philippine administrative classification, rural roads may be classified as national, provincial, city, municipal or barangay and functionally they can be arterial, feeder, or local.

2. ROLES OF RURAL ROADS

Rural roads play a critical role in economic and community development by linking production and consumption areas as well as facilitate access to services. It has been established that steady economic growth can be achieved through an efficient transport system and among the identified critical drivers for economic growth are roads (Regidor, 2013). Rural roads also enhance community development and well-being by providing access to education, health services, markets, employment, and other social services. It had been observed that in some rural areas that the authors visited, road carriageways are also used as pedestrian paths of school children and women who do not know how to drive or have no private means of transportation. This emphasizes the role of rural roads to provide equal opportunities to all stakeholders.

Rural roads are also considered as lifelines, providing protection to communities by facilitating emergency response operations, including evacuations in time of natural calamities. Thus, these roads need to be resilient in the midst of natural disasters such as typhoons and earthquakes in order for the very same communities that use them to be able to recover quickly from such

calamities. Experience during Typhoon Haiyan in 2013 emphasized the importance of the restoration of passable roads for relief and rescue operations as the Department of Public Works and Highways endeavored to clear and open the 36 roads rendered impassable by the typhoon.

In 2012, the Department of Tourism (DOT) and National Anti-Poverty Commission (NAPC) developed concepts involving the linking of communities into clusters that are made a part of a larger economic cluster. This is illustrated in Figure 1, with Cebu province used as an example. The larger economic cluster is defined by major transport facilities such as airports, seaports, and industrial or commercial centers. Economic activities at the community level include agriculture, fisheries, small-scale industries and tourism.

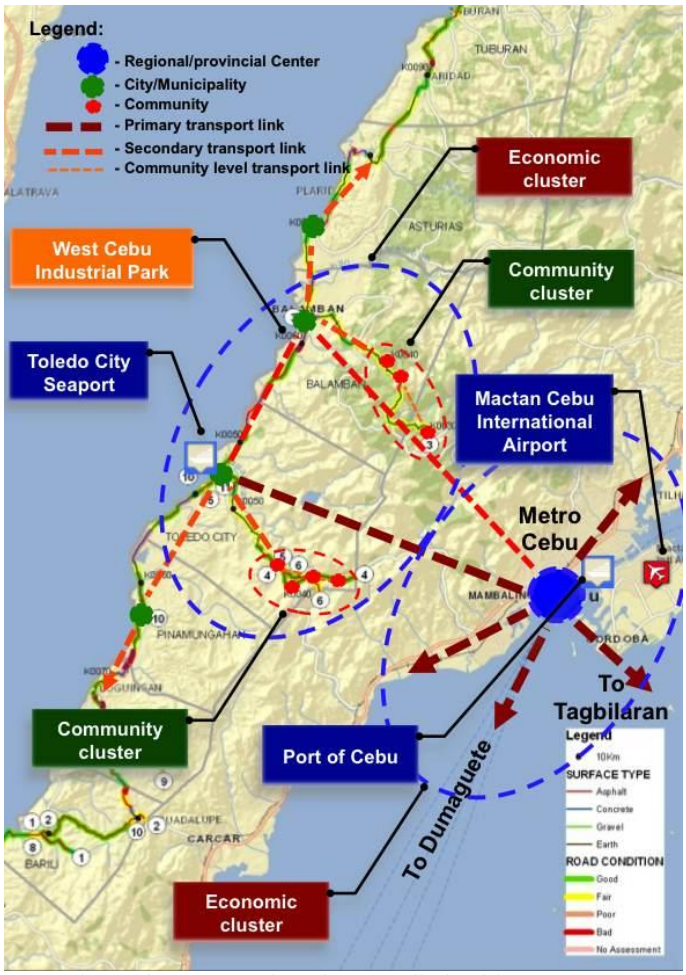


Figure 1. Economic and community clusters linked by transport infrastructure

Community level links are mostly via rural roads that can be provincial, city, municipal and barangay roads. These roads are not under the DPWH but are under the LGUs under the supervision of the Department of Interior and Local Government (DILG).

The National Economic Development Authority (NEDA) has classified priority development areas throughout the country according to three categories (WB, 2014), namely:

- *Category 1:* Areas with high poverty incidence but with low absolute numbers of poor people. It is necessary to invest in social protection, health and education in these areas and accessibility is required to achieve the same welfare levels as developed areas. Roads will provide the opportunities to take advantage of economic growth.
- *Category 2:* Rapidly developing areas such as cities that attract poor people (i.e., migration). Infrastructure including roads should make transport in these areas more efficient (i.e., should not constrain growth). Roads would also help expand or extend opportunities to neighboring areas.

- *Category 3:* Hazardous areas or areas that are highly vulnerable to disasters such as earthquakes, typhoons, etc. Transport infrastructure like roads and bridges in these areas need to be "disaster-proof" or "climate-proof" as part of an increased awareness for adaptation and the need for redundant infrastructure as a way of making the overall road network resilient.

Most rural roads will fall under categories 1 and 3 and serve a dual role of stimulating economic development and facilitating relief operations in times of disaster. And while resilience is ideally required everywhere, it is most relevant for areas in Category 3. In areas that are highly vulnerable to disasters such as earthquakes and typhoons, all-weather roads and bridges are required to ensure accessibility and transport system redundancy. According to Faiz (2012), prompt delivery of relief in areas affected by disaster can be facilitated with the existence well-engineered rural roads.

The quality of such rural roads varies from one province to another due in part to design, construction and maintenance standards and practices in the country.

3. PAVEMENT ENGINEERING IN THE PHILIPPINES

3.1 Design

The AASHTO Guide has been the reference of highway engineers around the world for pavement design and is still the preferred guide despite its publication in 1993. There have been supplements to the guide, particularly the one in 1998, but there have been no new editions of this manual. The guide emphasizes the need for the development of local factors such as those employed to determine materials properties for concrete. A more detailed discussion on the input parameters for AASHTO is provided in a succeeding section of this paper.

A list of references was provided by the DPWH-Bureau of Design (BOD). The list includes the following:

- American Association of State Highway and Transportation Officials (1993) Guide for the Design of Pavement Structures
- Transport Research Laboratory (1993) Overseas Road Note 31
- Asphalt Institute, Asphalt Overlays for Highway and Street Rehabilitation, Manual Series No. 17 (MS-17)
- Japan Road Association (1989) Manual for Asphalt Pavements

The TRL Road Note 31 is another old publication (1993) but is simpler than AASHTO. For one, the TRL method does not employ complicated nomographs or equations. According to the DPWH, it is usually employed for the proverbial second opinion to determine if pavement thicknesses, for example, that were derived using AASHTO are reasonable. It is important to note that this reference is applicable only for bitumen-surfaced roads (i.e., ACP). This is different from the Road Note 29 published by the same institution when it was still known as the Road Research Laboratory (RRL) in 1970. The latter provides a guide for both PCCP and ACP design.

The basic difference in design philosophies between the TRL and AASHTO methods may be seen from the approaches. The procedure for the TRL method determines the thicknesses of the layers from the bottom to the top following the reasoning that the sub-base and base layers form the foundations for the surface or slab layer. Thus, the logic here is that weak sub-base and base layers will eventually lead to deterioration of the surface/slab. Meanwhile, the AASHTO method determines the design thicknesses from the top to the bottom. The logic here is that the layer on top is designed to protect the layer beneath it while already incorporating the sub-grade, sub-base and base characteristics in each step of the design process.

The Asphalt Institute manual is obviously intended for ACP applications only and so with the one from the Japan Road Association. According to the DPWH-BOD, the former is only used occasionally while the latter is more a "relic" from previous training programs sponsored by the

Japan International Cooperation Agency (JICA) as part of their technical assistance to the DPWH.

There are no extant official issuances pertaining to the use of any manual though there are heavy references (and an apparent dependence) on AASHTO in the DPWH design manual (i.e., red book). When asked whether the DPWH has been developing or has developed local factors such as structural layer coefficients for use in the AASHTO procedures, the BOD stated that the values of coefficients (i.e., structural layer coefficients) from AASHTO were reduced for the Philippine setting. This reduction was a way of adapting the coefficients to local conditions and the reductions have generally resulted in thicker pavements.

The DPWH issued Department Order No. 22 in 2011 prescribing the minimum thickness and widths of national roads for both ACP and PCCP. The order also specifies the procedure for computing the cumulative equivalent single axle load for heavy vehicles considered in the estimation of the design load. This issuance is currently used by the DPWH for all roads under its jurisdiction, especially for new projects and roads being rehabilitated.

The DPWH-BOD also revealed that they employed average designs where thicknesses of pavement layers are the same for at least every one-kilometer of road section. This practice is more economical according to the BOD but the trade-off is that it is inevitable that certain sections will either be over-designed or under-designed depending on the actual conditions for that section.

The DPWH-BOD, as the responsible agency for design is also in-charge of the review of highway and street designs for national roads. These include designs submitted by contractors or design firms for various projects including foreign assisted ones with funding from the World Bank (WB), the Asian Development Bank (ADB), and other entities. Project designs are submitted to the BOD for review and the Bureau provides feedback in the form of recommendations as well as comments with reference to the guidelines used by the Department.

At the regional and district levels, the District Engineering Offices are in-charge of reviewing road designs, particularly for projects funded by the government through the General Appropriations Act (GAA) or the Priority Development Assistance Fund (PDAF) of senators and congressmen, which are also coursed through the DPWH if road projects are identified for use of the fund.

Local governments generally follow DPWH design guidelines and these are what are taught in the engineering schools around the country. However, there are issues whether the guidelines should be applied to local roads such as farm to market roads. These rural roads carry little traffic and applying the DPWH guidelines are perceived to result in over-designed roads that might be on the expensive side of construction costs.

Another aspect of design pertinent to the evaluation of rural roads is the adoption of the typical cross-section of national roads adopted by the DPWH as shown in the figure below. As can be seen, national roads are built with shoulders but not with sidewalks and other intermediate modes of transport such bicycles. The same holds true for the design of bridges on national highways. However, as mentioned earlier in this paper, rural roads also serve as main thoroughfares for school children and women who have no access to private mode of transport. Thus, the design put the vulnerable stakeholders at a disadvantage.


Figure 2. Typical National Road and Bridge Cross Section

3.2 Construction

The Bureau of Construction (BOC) is tasked with the review, evaluation, cost estimation, contracting of projects under the DPWH. The BOC is also charged with the inspection and monitoring of construction projects of DPWH implementing offices and other agencies.

Projects are now bidded out using an online system for prospective contractors to download bid forms and pertinent information on projects. Actual construction is carried out under the Project Management Office (PMO) and the District Engineering Offices spread across the different provinces and cities in the country. Figures 3 and 4 show typical construction practices in rural and urban areas.


a. Manual laying out of sub-base material


b. Compaction of sub-base layer

Figure 3. Typical construction practices for national roads in rural areas

a. Rehabilitation along local road
Source: cotabatoprov.gov.ph

b. Typical local road works
Source: http://www.mindanews.com/

Figure 4. Typical construction practices for local roads

The DPWH Blue Book is a manual that provides the details of items considered for road construction. These include the material requirements, tests, and methods that are used as basis for progress payments of road construction projects.

Local governments also generally use DPWH road construction guidelines as reference although for many projects, contractors are mostly responsible for following requirements such as those for materials and methods.

3.3 Maintenance

The DPWH implements a regimen according to three types of maintenance:

- Routine
- Periodic
- Preventive

Routine maintenance is applied to minor defects using what are usually labor-intensive methods and equipment. Such minor defects include minor failures for PCCP such as scaling, depressions and cracks (longitudinal, transverse and shrinkage). For ACP, these include potholes, rutting, corrugation and cracks (alligator and reflective).

Periodic maintenance is more intensive and refers to works undertaken in longer intervals, say every 5 years. These are usually implemented on project basis with funding from the GAA and employ more sophisticated equipment such as graders. Activities under periodic maintenance that are related to PCCP and ACP include:

- Resurfacing unpaved roads
- Bituminous surface treatment
- Resurfacing unpaved shoulders
- Selected replacement of concrete pavement

Preventive maintenance is also defined by the DPWH as works that are more extensive than routine maintenance work. The only difference mentioned is that preventive maintenance is conducted only after routine and periodic maintenance needs have been satisfied subject to the availability of funds. Activities under preventive maintenance include:

- Asphalt overlays
- Asphalt resealing
- Selective replacement of deteriorated concrete pavement, and bituminous penetration macadam pavement.

The DPWH developed the current Highway Planning Process under the Road Information Management Support System (RIMSS) project supported by the World Bank (WB) and Asian

Development Bank (ADB). The process involves data collection and monitoring of the national roads and bridges. Such data are utilized to formulate work programs based on needs that in time will result to better choice of maintenance treatments, effective utilization of funds, and ultimately effective management of the existing road network.

The Road and Bridge Information Application (RBIA) was established as repository of data used for analysis, reporting and information dissemination. The RBIA together with the data collection and management for the new highway planning process was institutionalized in the DPWH in 2004 through Department Order No. 54. The process was adopted by the RIMMS from the ROCOND 90 manual of the Road Traffic Authority of the New South Wales, Australia. It was further developed in 2006 by the DPWH through the RIMSS consultant. They have made changes to the ROCOND methodology to suite the Philippine condition and were utilized in the 2007 ROCOND surveys. After intensive monitoring of the 2007 ROCOND surveys, review and field validation of the data, and issues and concerns brought by the raters, further improvements have been made in 2008. Currently, the DPWH is again updating its ROCOND manual and is conducting training for their engineers.

The determination of the pavement road condition by visual inspection is termed "visual road condition assessments" (ROCOND) survey. The objectives of the ROCOND survey are as follows:

a. to measure and record the road condition throughout the system
b. to describe the road condition at the time of survey
c. to provide a sequence of recorded condition that can be analyzed to indicate performance trends
d. to provide condition data for the analysis in the Pavement Management System (PMS), Routine Maintenance Management Systems (RMMS), and eventually for budgeting in the Multi-Year Programming System (MYPS)

The assessment and measurement of road conditions follows different formats; some items like side drains and shoulders are rated on a scale of 1 to 5 while other items for gravel and earth are rated on a scale of 1 to 4 with accompanying condition descriptions with some simple dimensions, others that are particularly for concrete and asphalt are rated by severity of distress and extent of distress exhibited both of which are measured in terms of percentage of area affected by the particular distress, others are evaluated by sampling. Roads that are inspected should generally be of the same surface type of at least 50 m in length for paved road or even less for gravel road. The rating ascribed to each item is deemed to report the average condition of the whole segment at the time of inspection.

The Road and Bridge Information Application (RBIA) Regional Coordinators supervise, monitor and validate the condition data submitted by the *raters*. They are the overall responsible for the road condition data collection and management. The quality control checking must cover at least 5% of each district for each surface type. If there is discrepancy of greater than 15 VCI on more than 10% of the segments for any surface types, then all segments for that survey must be resurveyed.

The *rater* will select a segment of the road based on the procedures prescribed in the ROCOND manual. After selection of the segment, the rating process can begin and with the corresponding rating method. Road segments are sometimes rated on a representative gauging lengths: a 50 m gauging length for flexible pavements, and first 10 slabs for rigid pavement. Both are measured from the beginning of the segment to be rated. Assessment procedures for the different kinds of distress vary depending on the type of pavement in the segment of the road to be surveyed.

The DPWH uses the Highway Development and Management Ver. 4 (HDM-4) for evaluating national roads and bridges. The objectives in relation to HDM-4 include the following:

- Provide objective basis for prioritizing pavement management spending
- Prioritization based on RBIA data on road quality derived from the District Engineering Offices
- Insulate the road budget from political interventions to favor pet projects of politicians
- Require Program of Work for projects where those without were not given funds.

Data collected at the district level are used as inputs to the HDM-4 tool. The HDM-4 tool is operated under the DPWH Planning Service where the tool is employed for prioritization of maintenance works. Data inputs for the tool, however, present some concerns as well as the availability of funds for maintenance works. The DPWH-BOM provided some insights into practices pertaining to pavement maintenance in relation with the use of HDM-4 and those for foreign-funded projects.

In many cases, certain roads are prioritized for maintenance such as overlays or re-blocking due to a set of criteria used by the tool that includes the volume of traffic using a particular road. There is also the long-standing perception that most roads have to be severely deteriorated before maintenance works are undertaken. As such, if there are only minor defects or distresses, the tendency is for the layman to assume that such road pavement conditions do not yet merit maintenance works.

More often than not, engineering departments of local governments units in the Philippines do not have any sophisticated management system that would allow them to conduct assessments towards identification and prioritization of maintenance work for local roads. Moreover, it is likely that considering the available resources, urban roads would be prioritized over rural roads due to the amount of traffic carried by urban roads and therefore the perceived larger benefits derived from urban roads over their rural counterparts.

4. ISSUES IN ROAD DESIGN, CONSTRUCTION AND MAINTENANCE

4.1 Design Issues

Perhaps the most significant issue in pavement design is one related to the estimation of pavement loads. The DPWH Department Order 22 provides sample calculations of the heavy vehicle factors used in estimating the load for the corresponding design periods of ACP and PCCP. The factors used are based on the maximum gross vehicle weights prescribed under law (Republic Act 8794) rather than on empirical data such as the actual measured weights of heavy vehicles along highways. There is also the use of lane distribution factors where local factors are twice that prescribed by AASHTO or any Highway Engineering textbook.

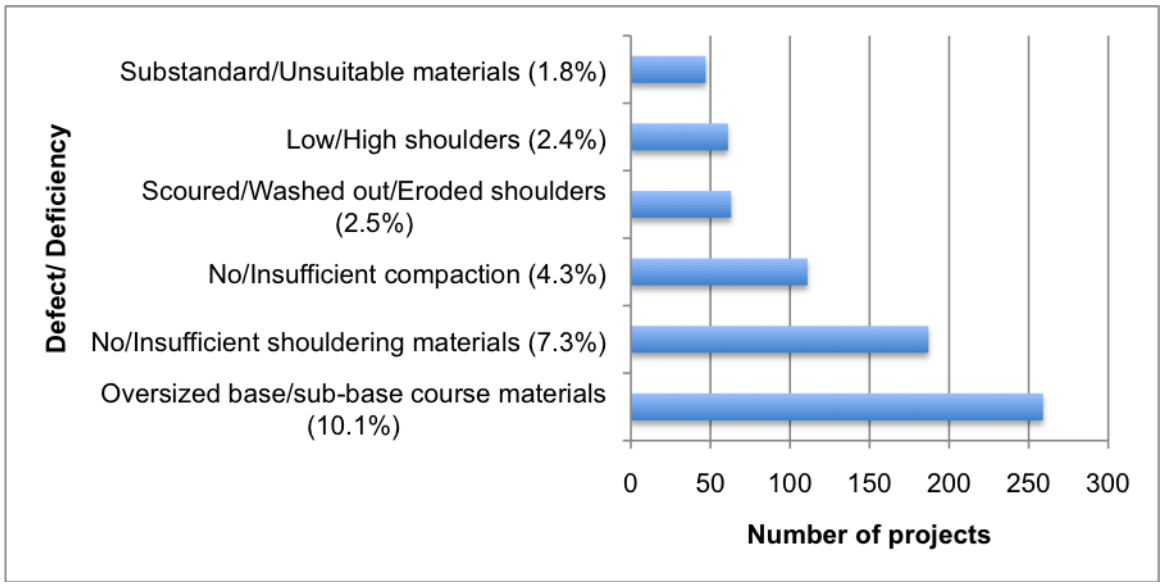
When coupled with the prevalent truck overloading practices in the Philippines, the implications of the first issue (vehicle factors) is a tendency for possible underestimation of loads over the design life of a road, thereby shortening the economic life of the facility. Meanwhile, the implication of the second issue is a tendency to overestimate the load for the design lane. This leads to thicker but more expensive pavements. Other parameters used in design are basically adopted from AASHTO with the exception of the structural layer coefficients that the DPWH has already adjusted for Philippine conditions.

In 2008, the AASHTO released a new design guide for pavement design using the Mechanistic-Empirical approach. This approach represents the state-of-the-practice in pavement design and enables designers to accurately predict performance of roadways under various loading. However, this approach is s not yet adopted by the DPWH. According to the BOD, it is not urgent for them to adopt the procedure and such will require capacity building for the Bureau as well as for their district and regional offices. Currently, there are no engineers with the DPWH who are knowledgeable or experienced with the new design procedure.

4.2 Construction Issues

Based on interviews with the DPWH, most issues pertaining to road construction are associated with the variation of practices by contractors. These variations are supposed to be incorporated in the design stage but shortcomings in monitoring of road projects often produce results that tend to lead to early deterioration of the pavement. Figure 5 shows statistics on the results of the

assessment of 2,559 roads during the maintenance stage where problems attributed to the construction stage are manifested.



Explanatory note: Out of a total of 2,559 roads, 10.1% (259 roads) were found to have oversized base/sub-base course materials.

Figure 5. Frequency distribution of defects/deficiencies of base, sub-base and shoulders for 2,559 roads in 2012 (DPWH, 2013)

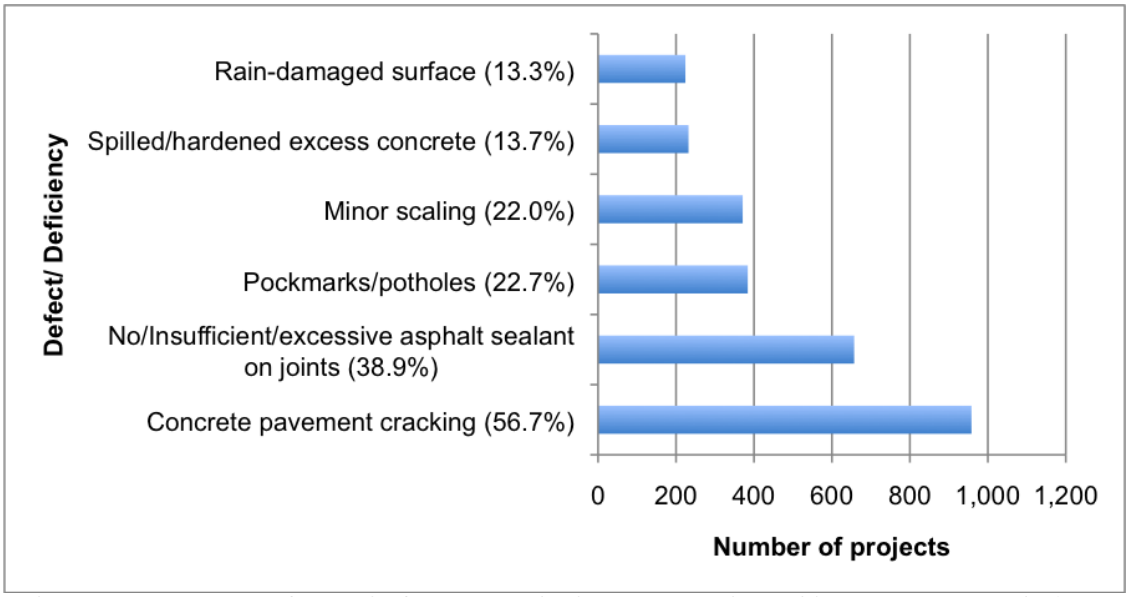
The most common problem is over-sized base and sub-base materials used in the projects. Significant, too, are substandard/unsuitable materials. These items are supposed to have been evaluated during the construction of the highway and could easily be identified by inspectors monitoring the progress of a project and whose assessment would be the basis for payments.

Although no distinction is made between urban and rural roads in the DPWH statistics, it can be surmised that the aforementioned malpractices will shorten the service life of the infrastructure and reduce its resilience. Similar statistics for roads under LGUs are even more difficult to obtain and sift through to determine the deficiencies for local rural roads.

Another critical problem in constructing rural roads is when its locality is prone to landslides and rock falls. Discussions with several engineers in the Cordillera Administrative Region reveal that although soil characterization is conducted to determine the sub-grade strength of roads, none is undertaken to ascertain the rock formations of the mountains that at times have to be blasted to make way for the new roads. This responsibility is passed on to the company that has been commissioned to perform the rock blasting.

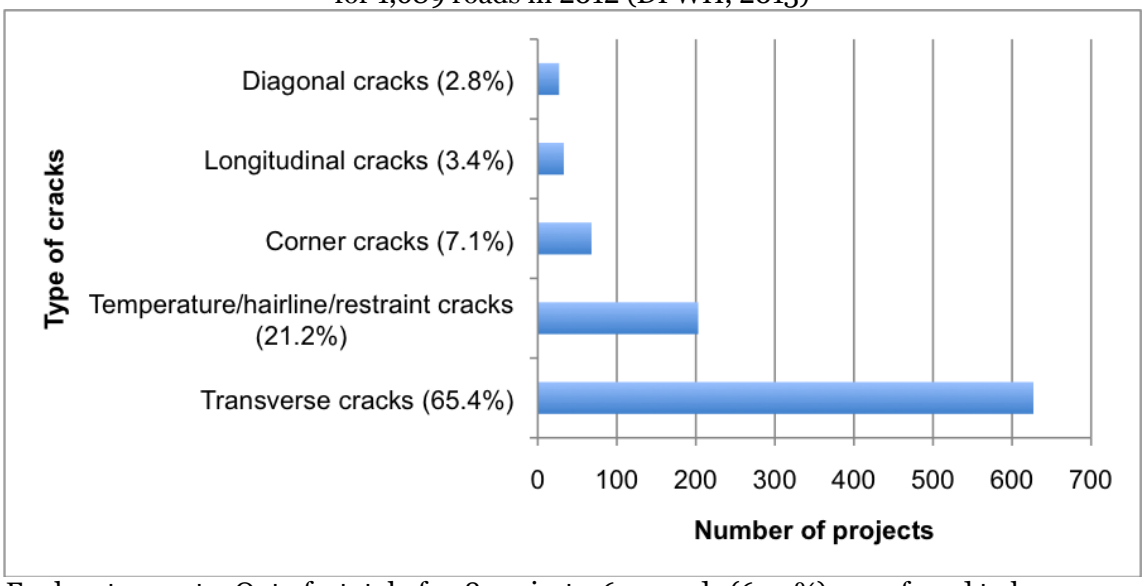
4.3 Maintenance Issues

Based on the data provided by the DPWH, the following Figures 6 and 7 show the most common defects or deficiencies found in PCCP and ACP in 2012. Figures 5 and 6 are related in that both pertain to PCCP and the data for the graph in Figure 6 is a subset of the data for the preceding graph. That is, Figure 5 shows a more detailed breakdown of cracks found in 958 roads throughout the country. These statistics from monitoring reports that serve as inputs for maintenance using HDM-4 can also be used for improving the design and construction of roads.



Explanatory note: Out of a total of 1,689 roads that were evaluated in 2012. 958 roads (56.7%) of were found to have concrete pavement cracking. Observations are not mutually exclusive.

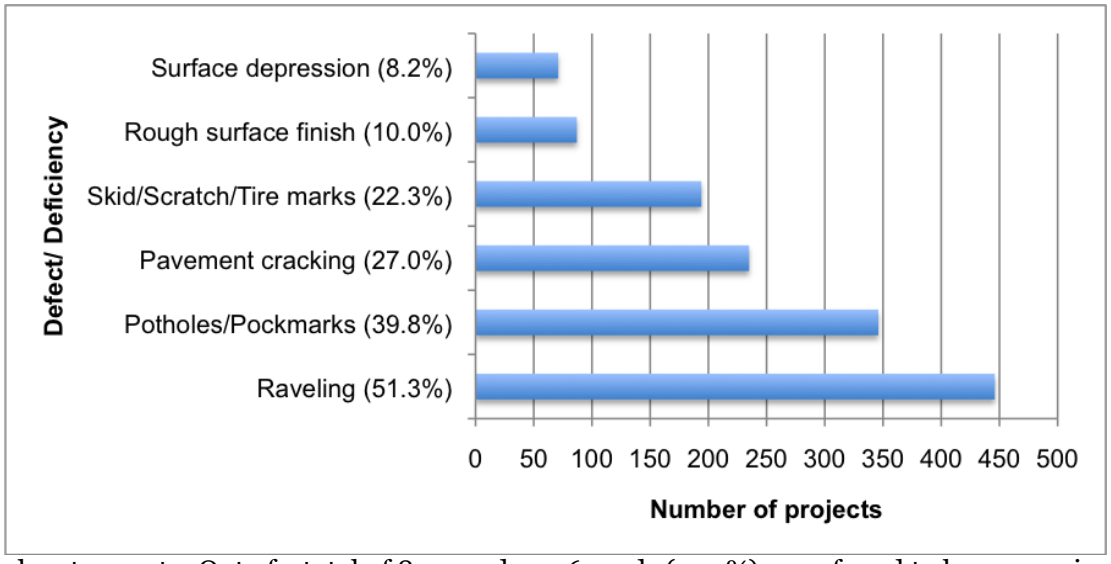
Figure 6. Frequency distribution of defects/deficiencies found in concrete pavements for 1,689 roads in 2012 (DPWH, 2013)



Explanatory note: Out of a total of 958 projects, 627 roads (65.4%) were found to have transverse cracks. Observations are not mutually exclusive.

Figure 7. Frequency distribution of defects/deficiencies pertaining to concrete pavement cracking for 958 roads in 2012 (DPWH, 2013)

Figure 8 shows the most common defects or deficiencies for ACP along 870 roads evaluated by the DPWH in 2012.



Explanatory note: Out of a total of 870 roads, 446 roads (51.3%) were found to have oversized base/sub-base course materials. Observations are not mutually exclusive.

Figure 8. Frequency distribution of defects/deficiencies found in asphalt pavements for 870 roads in 2012 (DPWH, 2013)

The World Bank (WB) identified issues in road maintenance particularly with the HDM-4 implementation. These include:

- Problems of synchronizing with budget calendar
- Data quality and timeliness have become concerns considering frequent changes in road conditions

It cited that data collected at the district level are about 10 months old by the time the HDM reports are generated. The HDM-4 list of priority projects comes out 6 months after the budget has been submitted to Congress.

The DPWH itself accepts these problems and has exerted efforts to address the timeliness of reports and their implications on project prioritization (i.e., given limited resources) and the budget process. The original and revised schedules followed by the DPWH for HDM-4 are shown in Table 4. Note the significant reduction in the total time it takes for the generation of reports from 9 months (February to October) to 6 months (February to July). Such reduction would allow for more time available for the preparation of budgets to be proposed for succeeding year.

For rural roads that are under the jurisdiction of the DPWH, funding may be made available when these are deemed priority for maintenance based on the results of HDM-4. However, for rural roads that are under the local government units, be it the provincial, city, or municipal government, financing for maintenance of roads may not be readily available. This could lead to the further deterioration of rural roads and render these less resilient when subjected to the onslaught of natural disasters.

5. KEY LEARNINGS

5.1 Roles of Rural Roads

Rural roads have the following roles in the community:

- Support economic and community development by linking production and consumption areas as well as access to services;
- Enhance community development and well-being by providing means of mobility to access to education, health services, markets, employment, and other social services;

- Protect communities by serving as lifelines, facilitating emergency response operations, including evacuations in time of natural calamities.

It is important to note that although these roles are true of roads in general, rural roads also cater to local non-motorized traffic for lack of existing alternative.

5.2 Implications of Current Standards and Practices on implementation of rural roads

National roads that are located in rural areas are constructed based on the DPWH guidelines. This practice may result to over-designed rural roads as these carry light traffic load. However, focus must be given to issues that beset local roads such as landslides and rock falls.

Another implication of this practice is that rural roads and bridges that have been implemented by the DPWH are built with shoulders but not with sidewalks and other intermediate modes of transport such bicycles, putting the vulnerable stakeholders at a disadvantage. Rural roads must support mobility for the local communities that these serve.

5.3 Challenges in Rural Roads Development

- Financing

Rural roads that are classified as national roads are assured of funding through the GAA. However, for rural roads that are under the local government units, be it the provincial, city, or municipal government, financing for maintenance of roads may not be readily available. This could lead to the further deterioration of rural roads and render these less resilient when subjected to the onslaught of natural disasters.

- Maintenance

More often than not, engineering departments of local governments units in the Philippines do not have any sophisticated management system that would allow them to conduct assessments towards identification and prioritization of maintenance work for local roads. Moreover, it is likely that considering the available resources, urban roads would be prioritized over rural roads due to the amount of traffic carried by urban roads and therefore the perceived larger benefits derived from urban roads over their rural counterparts.

6. MOVING FORWARD

The DPWH under the current secretary has adopted a mantra advocating: “Right Project, Right Cost, Right Quality, Right on Time and Right People.” This is a mantra that local government units can adopt and benefit from.

“Right Project” refers to the objective selection of projects that the agency would take on. This is based on a process that is evidence-based and employing the HDM-4 application for pavement management. With HDM-4, the agency claims that it is able to assess the conditions of roads and bridges, and to objectively prioritize projects for maintenance. The only limitation is usually the availability of budget within the fiscal year.

“Right Cost” refers to the preparation and evaluation of detailed designs, work programs and detailed estimated based on restructured or updated costs. The DPWH even states that at present, for the same amount of money, what used to be the cost of a concrete (PCCP) road for 230mm thickness is now the cost for a road with 280mm thickness.

“Right Quality” refers to efforts to ensure the quality of work on designs, maintenance works and constructed roads. The DPWH is already outsourcing project inspection and quality assurance and according to interviews these are initiatives from the Office of the Secretary. The agency is clustering projects and is adopting a more transparent and simplified bidding process to ensure project implementation by competent contractors with appropriate equipment. It has been

mentioned earlier that the DPWH is tinkering with Long Term Performance Based Maintenance Contracts (LTPBMC) for national roads. The outsourced maintenance of roads is being piloted along MacArthur Highway from Monumento, Caloocan City to Aringay, Pangasinan. No timetable for expanding this endeavor has been mentioned in interviews with DPWH Planning as the pilot project is currently being implemented and has not been evaluated.

"Right on Time" refers to the timely implementation, delivery or completion of projects. In addition to its own staff the DPWH has engaged the private sector and civil society organizations as partner in monitoring project implementation. An example of this is the case of Bantay Lansangan, which is associated with the Transparency and Accountability Network (TAN), has actively engaged the agency in the past. Bantay Lansangan developed the Road Sector Report Card (RSRC) that is used to rate the progress of projects as well as the quality of roads from the perspective of users.

"Right People" refers to items mentioned previously, and particularly related to DPWH staff involved in design, construction and maintenance, as well as to project staff of contractors engaged in various projects with the agency. In the case of the DPWH, the agency has embarked on various programs to build capacity and capability. These include sending qualified staff to training programs here and abroad. The agency has also initiated a cadet engineers program that is designed to attract young engineers to the agency.

Such reforms and others have been initiated under the administration of the current secretary with a conscious effort in address many of the criticisms hurled at the agency. While many programs can be argued as continuing from initiatives of previous administrations, the observations of the private sector and civil society groups is that the DPWH now is more open or engaging to partnerships or cooperative work with other entities. This is consistent with the agency's drive to shed its image as an institution associated with corruption and inefficiencies, and something that the private sector and civil society should take advantage of in terms of recommending or suggesting improvements in guidelines and procedures of the agency.

High quality rural roads need to be better managed and upgraded because they provide basic access for poor communities to basic services and important emergency services in times of disasters. Uniform standards for pavements, drainage, and slope protection need to be adopted to ensure all-weather accessibility. Resources should also be allocated to revise drainage standards and designs in light of extreme weather conditions to better manage frequent flooding in these areas. However, guidance is needed from DPWH in order to train communities capable of constructing and maintaining these roads, according to standards developed or adopted for such roads.

Recently, the DPWH has entered into a Memorandum of Agreement with the Department of Tourism (DOT) to undertake the 'Convergence Program for Enhancing Tourism Access' to address the "last mile" requirements for linking national roads with tourism destinations, thus enhance economic development. Under the DPWH-DOT Convergence Program, the LGUs are actively involved in identifying the tourism roads that are critical. Other Convergence programs with the Department of Transportation and Communications (DOTC) and the Department of Agriculture (DA) will follow soon to provide funding for rural roads that will link critical transport facilities such as airports and ports as well as agricultural production areas to national roads. These alliances between national government agencies, with the local government units as partners, critical rural roads can now be identified and prioritized.

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