**PROJECT PATCH: PLASTIC ASPHALT FOR THRIVING ROADWAYS**

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**A Project Proposal**

Presented to

A Faculty of Department of Social Sciences (DSS)

Mariano Marcos State University

College of Computing and Information Sciences

Batac City

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In Partial Fulfillment of the

Requirements for the Subject

**SOCSC 01: Readings in Philippine History**

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1. **Project Title:**  Project Patch: Plastic Asphalt For Thriving Roadways
2. **Proponent:** Francisco Basilio, Jonn Angelo Jaramillo, Karl Vincent Balcita, Mark Lorenz Datuin and Lin Anthony Pineda
3. **Implementing Entity:** Barangay San Marcos (Payas), San Nicolas, Ilocos Norte
4. **Rationale:**

In Barangay 16, San Marcos (Payas), San Nicolas, the worsening condition of roads and sidewalks has become a visible and urgent concern for residents. Many of these pathways have fallen into a condition where some roads causes disruptions and inconveniences: cracked pavement, potholes and uneven surfaces make them difficult and dangerous to navigate, especially for children, senior citizens, and persons with disabilities. Compounding the problem is improper waste disposal and overgrown vegetation which further restricts pedestrian movement, reduces visibility and contributes to public health and safety risks.

Beyond personal safety concerns, the degraded state of public walkways discourages walking as a form of active transport. The issue is not merely cosmetic, it hinders accessibility, public health, and the state of daily life in the community.

Project Patch: Plastic Asphalt For Thriving Roadways seeks to address both of these pressing issues through an innovative, community-based solution. By repurposing recycled plastic waste into an eco-friendly patching material for minor road repairs, This initiative addresses these intersecting challenges with a solution that is community-led, low-cost, and sustainable for maintaining community roadways. This approach not only promotes environmental stewardship but also empowers the community through participation and local resource mobilization.

This approach reframes public infrastructure not only as a government responsibility but also as an investment made by the community as whole, one that fosters pride, ownership, and economic empowerment. In the long term, the project promotes urban resilience, safety, and social equity, aligned with these national laws and the barangay’s development goals.

This initiative is decided upon in accordance to the several orders, mainly **Article II, Section 9** of the Philippine Constitution which mandates the promotion of a just and dynamic social order, improve social order and the quality of life for all. **DILG Memorandum Circular No. 2020-027** which is a directive to clear roads of illegal obstructions issued at 2020 that mandates all LGUs and barangays to maintain safe, unobstructed sidewalks and conduct regular clean-up, **RA 9003 (Ecological Solid Waste Management Act of 2000)** in regards to improperly disposed trash on sidewalks, aswell as **Sustainable Development Goal (SDG) 9, "Industry, Innovation, and Infrastructure"**which aims to improve living standards when it comes to restoring and improving various infrastructures such as roads.

1. **Objectives:**

**A.** **General:**

To implement a sustainable road repair system using recycled plastic materials in Barangay San Marcos.

**B.** **Specific:**

1. Identify and map areas with minor road damage.
2. Collect and process plastic waste into patching material.
3. Train a local team in eco-patching techniques.
4. Reduce environmental waste through recycling.
5. Improve road safety and accessibility within the barangay.
6. **Strategy/Operational Activities**

**A.** **Preparatory Activities**

* + - 1. Ask permission to the barangay captain and request for the approval to conduct a meeting together with the members of barangay councils through a formal letter request
      2. Coordinate with the barangay officials and give a reminder for the meeting
      3. Make the schedule of the meeting
      4. Photocopy the project proposal hard copy
      5. Distribute the paper for their review copy

**B.** **Program on Date:**

1. Arrival of the Barangay Council and Captain

2. Opening for the Meeting

* + - * 1. Prayer
        2. Greetings
        3. Presentation
        4. Open Forum
        5. **Votation**

**C. Closing for the Meeting**

* + - * 1. Meeting Impressions
        2. Closing Remarks
        3. Prayer

1. **Funding Requirements:**

Plastic collection tools and bins

Shredding equipment (or partner with recyclers)

Safety gear and repair tools

Training materials

Contingency and maintenance fund

1. **Staffing Pattern:**
2. Project Coordinator
3. Barangay Liaison Officer
4. Technical Trainer (Eco-Patching)
5. Repair Task Force (4-6 local workers)
6. Monitoring & Evaluation Officer

**MARKET STUDY**

**SUPPLY**

**The Participants**

The number of participants in the project will be approximately twelve people. This includes the Barangay Captain, Secretary, SK Chairman, Environmental Officer, and the members of the Barangay Council. Additional members may include a representative from the waste management team and selected local volunteers from the community.

**Location**

The meeting and initial training will be conducted at the barangay hall near the local Elementary School of Barangay San Marcos, which is accessible to most residents. The location is well-lit and well-ventilated, and it has a sufficient number of chairs and tables to accommodate all participants comfortably. This setting ensures convenience for both presentation and hands-on demonstration of the eco-patching technique using recycled materials.

**TECHNICAL STUDY**

**TECHNOLOGY OR PRODUCTION PROCESS**

Sustainable Road Repair for Barangay Development Many barangay roads are damaged. Cracks, potholes, and floods make travel hard and unsafe. Old repair methods often fail. They cost more over time and don’t last. This study offers a better way. It uses local materials, eco-friendly methods, and community labor. Roads are fixed to last longer, drain better, and resist damage from rain. We studied road conditions, soil types, and drainage problems. We found that poor materials, blocked ditches, and heavy rains cause most damage. To solve this, we propose using crushed rock, fiber-reinforced concrete, and recycled materials like plastic or old asphalt. Proper drainage is key—side ditches, culverts, and grass-lined canals reduce water buildup. A simple, durable road design costs around ₱2.4 million per kilometer. It includes gravel base, concrete surface, drainage, and green shoulders. Labor can come from local workers, creating jobs. Sustainable road repair supports barangay growth. It improves access to schools, markets, and health care. It builds stronger communities—one road at a time.

The implementation and maintenance of the plastic asphalt roads will be conducted by barangay personnel, including volunteers or individuals fulfilling community service. This encourages community participation and reduces labor costs, this maintenance will be conducted quarterly as well as an annual inspection as per law by DPWH to ensure structural integrity and safety of roadways. Moreover, we’ll use the more economically favorable method of asphalt production, where shredded plastic is directly mixed with heated aggregates before bitumen is added (the Dry Method of Asphalt Production) which eliminates the need for extensive processing or chemical additives, thus lowering overall project expenses while maintaining sufficient durability for barangay-level roadways.

**SOCIAL FEASIBILITY ANALYSIS**

Project PATCH presents a sustainable and community-driven solution, but it is essential to assess how this initiative will affect Barangay San Marcos and its surrounding residents. Damaged roads not only hinder mobility but also pose risks to safety and limit access to schools, markets, and emergency services. By implementing an eco-patching system that uses recycled plastic waste, the barangay can address these problems while also promoting environmental responsibility.

However, any community-wide project comes with potential challenges. For instance, some residents may initially be hesitant to adopt the use of plastic-modified materials in road repairs, questioning its durability or safety. It is therefore necessary to conduct awareness campaigns and pilot demonstrations to build trust and show the effectiveness of the method.

Another concern may stem from the collection of plastic waste. If not managed properly, the collection points may attract clutter or unsanitary conditions. To address this, proper guidelines and regular pick-up schedules should be established in partnership with local waste collectors and volunteers.

Additionally, scheduling the road repairs must be done with consideration of community activity and traffic flow. Blocking roads, even temporarily, may inconvenience some residents. This can be mitigated by implementing a phased repair schedule, targeting one area at a time during low-traffic periods.

Despite these possible concerns, the project has significant potential to benefit the community. It encourages environmental awareness, creates temporary jobs or volunteer roles for youth and local workers, and improves the overall livability of Barangay San Marcos. The use of recycled materials not only reduces waste but also promotes innovation at the grassroots level. With proper planning, coordination, and feedback mechanisms, Project PATCH can become a model of sustainable development for other barangays in the region.

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