



Proposal for Joint R&D Agreement (JRDA) and Pilot-Scale Manufacturing

1. Executive Summary: The Mindanao-Ontario Green Materials Corridor

NovaTerra Materials Ltd. (NTM) is establishing a sovereign Abaca feedstock pipeline, which is underpinned by the stewardship of 500,000 hectares of ancestral land, to the North American automotive sector. We seek a formal Joint Research & Development Agreement (JRDA) with DOST-ITDI to co-develop our proprietary "NovaTerra-Core™" biopolymer pellets using ITDI's state-of-the-art polymer processing facilities.

2. Strategic Collaboration and Funding Catalyst

The JRDA serves as the scientific foundation essential for unlocking Canadian government funding (NGen, SR&ED). DOST-ITDI's participation is the critical non-monetary contribution required to secure these grants, which are earmarked to fund the subsequent bilateral R&D program in both Ontario and the Philippines.

- **R&D Mandate:** Execution of a pilot production run (50kg–100kg) of masterbatch for Tier-1 OEM trials in Ontario.
- **Institutional Endorsement:** NTM formally requests that DOST-ITDI Materials Science Division experts join our Technical Advisory Board (TAB). This membership provides the third-party validation necessary to satisfy the audit requirements of Canadian funding bodies.
- **Scientific Rigor:** Collaborative validation of NTM's processes (e.g., the 0.5 wt% NaOH protocol) makes the technical data "bankable" for international commercialization.

3. Supply Chain Integrity and ESG Compliance

The proposal leverages NTM's Tripartite MOU with IPEE and the NCIP to demonstrate compliance with Canadian federal regulations, including the Fighting Against Forced Labour in Supply Chains Act (S-211).

- **Carbon Asset Strategy:** Accrediting the 500,000-hectare ancestral land's carbon sink allows for a "Carbon-Negative Bill of Materials" proposition.
- **Ethical Sourcing:** The 5% Stewardship & Innovation Fund satisfies the benefit-sharing mandates of the Philippine FPIC process.



4. Execution Roadmap

- **Phase 1 (The Lab):** Fiber delivery and joint certification of the Technical Data Sheet (TDS).
 - **Phase 2 (The Grant):** Export of pilot batches to Canada to trigger R&D grant acquisition.
 - **Phase 3 (Bilateral Program):** Commencement of grant-funded R&D to secure IP and prepare for mass production.
-

Appendix: Canadian Context Glossary

Government Agencies and Policies

- **Bill S-211 (Fighting Against Forced Labour and Child Labour in Supply Chains Act):** A mandatory Canadian law, effective January 1, 2024, requiring companies to file annual reports detailing steps taken to prevent forced or child labor at every step of their supply chain.
- **Export Development Canada (EDC):** Canada's export credit agency and a primary financier of "clean tech." EDC performs enhanced due diligence on human rights and environmental impact, requiring proof of Free, Prior and Informed Consent (FPIC) and sustainable sourcing.
- **Canada's Indo-Pacific Strategy:** A \$2.3 billion CAD framework launched in late 2022 to deepen Canada's engagement in the region, prioritizing the Philippines for building resilient supply chains for critical and sustainable materials.
- **Project Arrow 2.0 (Vector and Borealis Platforms):** Canada's flagship initiative to showcase an all-Canadian Zero-Emission Vehicle (ZEV) supply chain, currently seeking lightweight, bio-based "Advanced Materials" to replace petroleum plastics in automotive interiors.

R&D Grants and Funding Mechanisms

- **Scientific Research and Experimental Development (SR&ED):** A federal tax incentive allowing Canadian businesses to recover up to 65% of their eligible R&D costs. A Joint R&D Agreement (JRDA) with a National Science Institute is considered audit-proof experimental R&D for SR&ED maximization.



- **Next Generation Manufacturing Canada (NGen):** A federal grant body providing matching funds for advanced manufacturing projects. NTM will access NGen funding to develop and patent proprietary additive packages and ensure its biopolymer products meet the "Carbon-Negative" requirements of Canadian OEMs.
- **Strategic Innovation Fund (SIF):** Provides repayable and non-repayable contributions for large-scale industrial projects (minimum total cost typically \$20 million), providing matching funds between 10% and 50%.
 - **SIF Stream 1 (R&D and Commercialization):** A specific funding track within SIF designed to accelerate the transfer of innovative products from the lab to the market across all Technology Readiness Levels (TRL 1–9).
- **Net Zero Accelerator (NZA):** An \$8 billion initiative within the SIF framework to support projects that provide "near-term emissions reductions" to help Canada meet its 2030 and 2050 climate targets.
- **NRC Industrial Research Assistance Program (IRAP):** Provides up to \$10 million in non-repayable grants for innovative projects, typically covering 80% of technical salaries and 50% of subcontractor costs.
- **Ontario Innovation Tax Credit (OITC):** An 8% refundable tax credit that can be stacked with the SR&ED tax credit for Ontario-based companies.

Carbon and ESG Terminology

- **Carbon Insetting:** A sustainable practice where a company invests directly in emission reduction or carbon removal projects within its own supply chain (Scope 3), such as agroforestry in sourcing regions, rather than purchasing external offsets.
-



Joint Research & Development Agreement (JRDA)

Between NovaTerra Materials Ltd. (NTM) and The Industrial Technology Development Institute (DOST-ITDI)

PREAMBLE

This Joint Research & Development Agreement (the "Agreement") is entered into by and between **NovaTerra Materials Ltd.**, a Canadian corporation (hereinafter "NTM"), and the **Industrial Technology Development Institute** of the Department of Science and Technology, Republic of the Philippines (hereinafter "DOST-ITDI"). The purpose of this JRDA is to establish a formal, collaborative framework for the experimental R&D and pilot-scale manufacturing of the proprietary "NovaTerra-Core™" biopolymer masterbatch, and to leverage this institutional partnership as the scientific foundation for securing bilateral R&D funding from Canadian government agencies.

ARTICLE I: SCOPE AND OBJECTIVES

The primary objective is the joint co-development of the NovaTerra-Core™ biopolymer pellet, designed for Tier-1 North American automotive applications, with a secondary objective of satisfying the high-level scientific and ESG audit requirements of Canadian R&D grant bodies (specifically SR&ED and NGen).

1.1. Project Definition: The "NovaTerra-Core™ Project" involves compounding NTM's processed Abaca "Activated Fiber" (0.5 wt% NaOH protocol) with thermoplastic matrices (e.g., PP, PLA) using DOST-ITDI's Materials Science Division (MSD) facilities.

1.2. Grant-Funding Mandate: This Agreement serves as the legal and scientific trigger event for NTM to apply for and secure substantial Canadian R&D grants, which are earmarked to *fully fund* the subsequent Phase 3 Bilateral R&D Program in both Ontario and the Philippines.

ARTICLE II: STATEMENT OF WORK (SOW) AND PHASING

The JRDA shall proceed in three interdependent phases:

2.1. Phase 1: The Lab and Validation

- **Activity:** NTM shall deliver a specified quantity of Activated Fiber feedstock to DOST-ITDI MSD facilities.
- **Deliverable:** Jointly execute formulation and compounding R&D to optimize interfacial bonding.
- **Certification:** Joint generation and certification of the Technical Data Sheet (TDS) detailing the composite's mechanical properties (tensile strength, flexural modulus,



impact resistance).

2.2. Phase 2: Pilot-Scale Manufacturing and Grant Acquisition

- **Activity:** Utilization of ITDI's twin-screw extrusion facilities to produce a controlled, small-volume pilot masterbatch (50kg – 100kg).
- **Deliverable:** The pilot batch will be exported to Ontario, Canada, for Tier-1 OEM injection-molding trials.
- **Mandate:** NTM will simultaneously leverage this JRDA and the newly established Technical Advisory Board (Article V) to apply for and secure the targeted Canadian R&D grants (NGen, SR&ED, NRC IRAP).

2.3. Phase 3: The Bilateral R&D Program (Grant-Funded)

- **Activity:** Commencement of the larger R&D program, contingent upon the successful acquisition of Canadian grant funding.
- **Deliverable:** IP lock, international patent filing, and further scale-up development to prepare for mass production.

ARTICLE III: INSTITUTIONAL CONTRIBUTIONS AND FUNDING

3.1. NTM Contribution (Financial and Material):

- NTM is responsible for securing Canadian R&D grants (e.g., NGen, SR&ED). These funds will, in retrospect, reimburse DOST-ITDI for all direct costs incurred during Phase 1 and 2 (materials overhead, equipment time) and fully fund the Phase 3 Bilateral R&D Program. NTM's core material contribution consists solely of providing the verified, ethically-sourced Abaca supply chain (Article VI).

3.2. DOST-ITDI Contribution (Non-Monetary and Institutional):

- DOST-ITDI's primary contribution is the provision of accredited facilities (twin-screw extrusion), scientific expertise from the Materials Science Division, and government-backed third-party technical validation of NTM's processes.
- This non-monetary contribution is recognized as the essential institutional support required by Canadian grant auditors to legitimize the R&D as "textbook, audit-proof experimental development."

ARTICLE IV: INTELLECTUAL PROPERTY (IP) AND COMMERCIALIZATION

4.1. **IP Protection:** NTM shall retain exclusive commercialization rights for the North American market (Canada/US) related to the NovaTerra-Core™ biopolymer pellet and associated proprietary additive packages. This retention is mandatory to satisfy SR&ED and NGen audit requirements.

4.2. **Attribution and Future Framework:** DOST-ITDI shall receive formal acknowledgment of



its developmental role in the creation of the NovaTerra-Core™ biopolymer pellets. Upon successful commercial scale-up (Phase 4), a formal Technology Transfer or Royalty framework will be established to recognize ITDI's contribution to the core IP.

4.3. Sustainable Research Funding Commitment: NTM commits to investing a committed percentage of its net North American commercialization profits from the NovaTerra-Core™ biopolymer into DOST-ITDI's Sustainable Materials Research Fund to support continued local R&D into bio-based technologies, independent of the Technology Transfer or Royalty framework defined in 4.2.

ARTICLE V: TECHNICAL ADVISORY BOARD (TAB) AND INSTITUTIONAL ENDORSEMENT

5.1. Request for Appointment: NTM formally requests that top R&D Staff/Engineers from the DOST-ITDI Materials Science Division join NTM's Technical Advisory Board (TAB).

5.2. Strategic Value: The presence of DOST experts on the TAB is deemed an **essential requirement** for Canadian grant compliance (NGen and SR&ED). This membership provides independent technical direction and institutional endorsement, which significantly de-risks the project for grant auditors and makes the data "bankable" science.

ARTICLE VI: ESG AND CANADIAN COMPLIANCE

6.1. Supply Chain Validation (S-211): This JRDA is underpinned by NTM's Tripartite MOU with the Indigenous People Economic Enterprise (IPEE) and the National Commission on Indigenous Peoples (NCIP). This MOU demonstrates a legally robust and ethically transparent supply chain, necessary for compliance with Canadian regulations, including the Fighting Against Forced Labour in Supply Chains Act (S-211).

6.2. Carbon-Negative Value Proposition: The project integrates the stewardship of the 500,000-hectare ancestral land's carbon sink. The goal is to accredit these carbon assets for *Scope 3 Insetting*, allowing NTM to market the resulting NovaTerra-Core™ biopolymer pellet as a certified "**Carbon-Negative Bill of Materials**," a core requirement for NGen funding and North American OEM mandates.

ARTICLE VII: TERM AND TERMINATION

7.1. Term: This Agreement shall commence on the Effective Date and remain in effect for a period of three (3) years, unless terminated earlier in accordance with this Article.

7.2. Termination for Convenience: Either Party may terminate this Agreement upon ninety (90) days' prior written notice to the other Party.

7.3. Termination for Cause: Either Party may terminate this Agreement immediately upon written notice if the other Party commits a material breach and fails to cure such breach within thirty (30) days of receipt of notice.

ARTICLE VIII: GOVERNING LAW

8.1. Governing Law: This Agreement shall be governed by and construed in accordance with



the laws of the Republic of the Philippines regarding activities performed therein, and the laws of the Province of Ontario and the federal laws of Canada regarding activities performed in Canada.

8.2. Dispute Resolution: Any dispute arising out of this Agreement shall first be resolved through friendly consultations between the Parties. If no resolution is reached within sixty (60) days, the dispute shall be submitted to arbitration in accordance with the UNCITRAL Arbitration Rules.

ARTICLE IX: CONFIDENTIALITY

The Parties agree to maintain the confidentiality of all proprietary information exchanged during the term of this Agreement. Neither Party shall disclose Confidential Information to any third party without the prior written consent of the disclosing Party, except as required by law or for the purpose of securing Canadian government R&D grants.

ARTICLE X: NOTICES

All notices required under this Agreement shall be in writing and delivered to the following addresses:

For NTM: NovaTerra Materials Ltd., Ontario, Canada. Attn: Chief Executive Officer.

For DOST-ITDI: Industrial Technology Development Institute, DOST Compound, Gen. Santos Ave., Bicutan, Taguig City, Philippines. Attn: The Director.

SIGNATURES

IN WITNESS WHEREOF, the Parties have caused this Agreement to be executed by their duly authorized representatives.

NovaTerra Materials Ltd. (NTM)	DOST-ITDI
<hr/>	<hr/>
Name: Mark Michael Laurel Casiano	Name:
Title: President & Co-founder	Title:
Date:	Date: