
The SEED Program

Building the Philippine Product Ecosystem on Sibacus IP

A ₱250M (\$4.5M), 3-year initiative to create the engineers and companies that build products on BSA-CIM technology — the ARM model, applied to the Philippines

EquaSat: The Flagship Project (Silicon to Orbit)

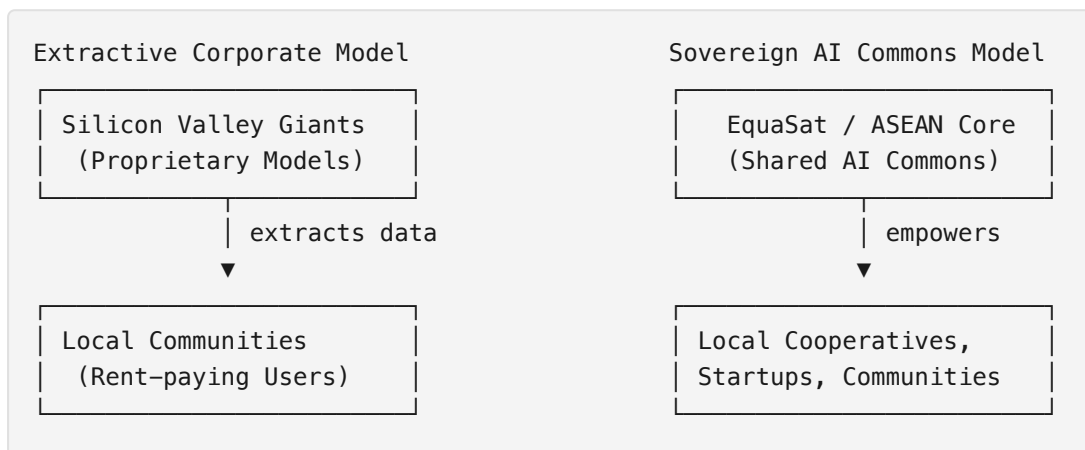
The SEED Program does not exist in a vacuum. It is the capability layer for **EquaSat** (www.equasat.me) — the ASEAN sovereign orbital platform. EquaSat is a constellation of satellites providing nine distinct missions, including SOVEREIGN MIND (orbital AI compute), EARTH A-EYE (observation), FOREST SHIELD (deforestation), OCEAN A-EYE (maritime), HARVEST A-EYE (agriculture), OCCUPY SOIL (carbon), EQUANET.ME (broadband), EQUALAUNCH.ME (equatorial launch), and EQUAPORTS (transport).

Because traditional GPUs cannot function in space due to extreme power, thermal, and radiation constraints (a satellite's entire solar budget is ~12kW, while GPUs pull hundreds of watts per chip), EquaSat relies exclusively on **BSA-CIM modules for orbital compute**, performing inference at ~1W.

SEED trains the engineers who build this compute infrastructure. The edge devices built by SEED ecosystem companies connect TO and THROUGH EquaSat, acting as the ground segment (e.g., student tablets sync via EQUANET, farm sensors feed HARVEST A-EYE, forest monitors verify through FOREST SHIELD). This architecture enables an **ASEAN AI Commons** — domain-sovereign AI models for agriculture, conservation, maritime, health, and climate that Silicon Valley cannot build. SEED and EquaSat have SEPARATE capex — SEED's ₱250M trains people, while the EquaSat constellation operates on separate funding.

The Philosophical Core: Sovereign AI as Community Defense

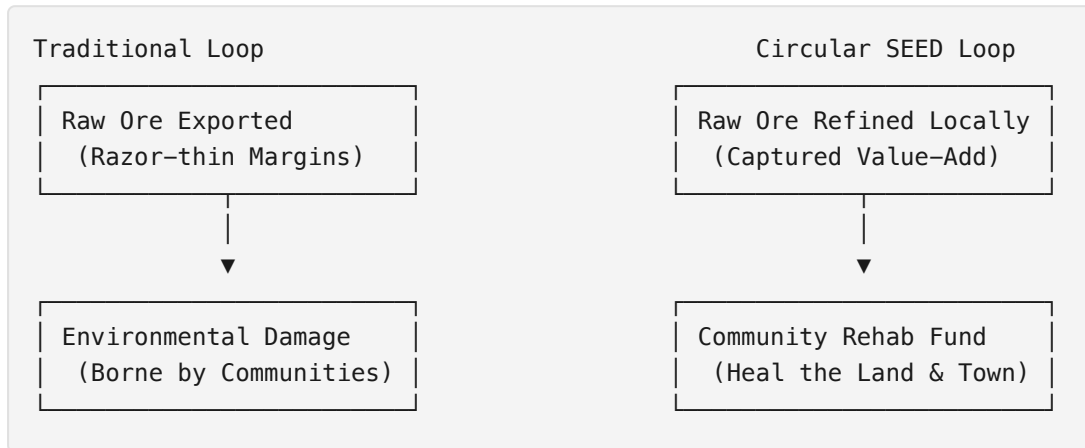
At its heart, **Sovereign AI** is not merely a technical or nationalistic objective; it is a defensive shield against the systemic takeover of public governance and local communities by foreign corporate monopolies.



- **Against Extractive Monopolies:** When a handful of multinational technology corporations own the entire AI stack—from the silicon design to the foundation models and cloud datacenters—they possess the power to extract local data, capture local talent, and lease back black-box technologies on their own terms. This allows corporate special interests to bypass, lobby, and eventually dictate policy to sovereign governments.
- **Anti-Greed, Not Ideological:** This framework is not about state-run communism; it is about community self-determination and anti-greed. By establishing a shared infrastructure layer (the AI Commons), SEED prevents the monopolistic capture of critical digital infrastructure.
- **Decentralized Value Retention:** In the SEED ecosystem, the foundational hardware design (BSA-CIM) and domain models (agriculture, languages, conservation) are shared resources. Local entrepreneurs, agricultural cooperatives, and public institutions build specialized applications on top of this foundation, ensuring that economic returns, intellectual property, and community control remain domestic.

The Resource Foundation: From Mine to Module

Geographically, the semiconductor strategy does not start in Clark's empty real estate. It starts in the **nickel mines** of the Philippines—one of the largest global sources of the raw materials enabling the AI hardware revolution.



- **Refining Closer to Electronics:** The traditional extractive loop ships raw ore abroad, capturing minimal profit while leaving ecological devastation behind. The SEED Program aligns with domestic refining of nickel into high-value electronics packaging, substrate layers, and thermal management inputs.
- **Healing the Source:** By integrating refining and material science closer to design (SEED) and assembly (OSAT), we capture the maximum margin. A portion of this value-add is direct-channelled into the environmental rehabilitation and infrastructure upgrades of the mining communities that made the AI compute possible.
- **Complete Loop Sovereignty:** This connects the soil to silicon, space, and back to the soil, ensuring a sustainable ecosystem where technology serves and heals the community rather than draining its resources for foreign corporate gain.

The Model: Sibacus Is ARM. The Philippines Is the Ecosystem.

ARM doesn't build phones. ARM designs the processor architecture and licenses it. Qualcomm, MediaTek, Apple, and Samsung license ARM's IP and build billions of devices on top of it. ARM's value isn't in any single product — it's in the ecosystem of companies that can't ship without ARM inside.

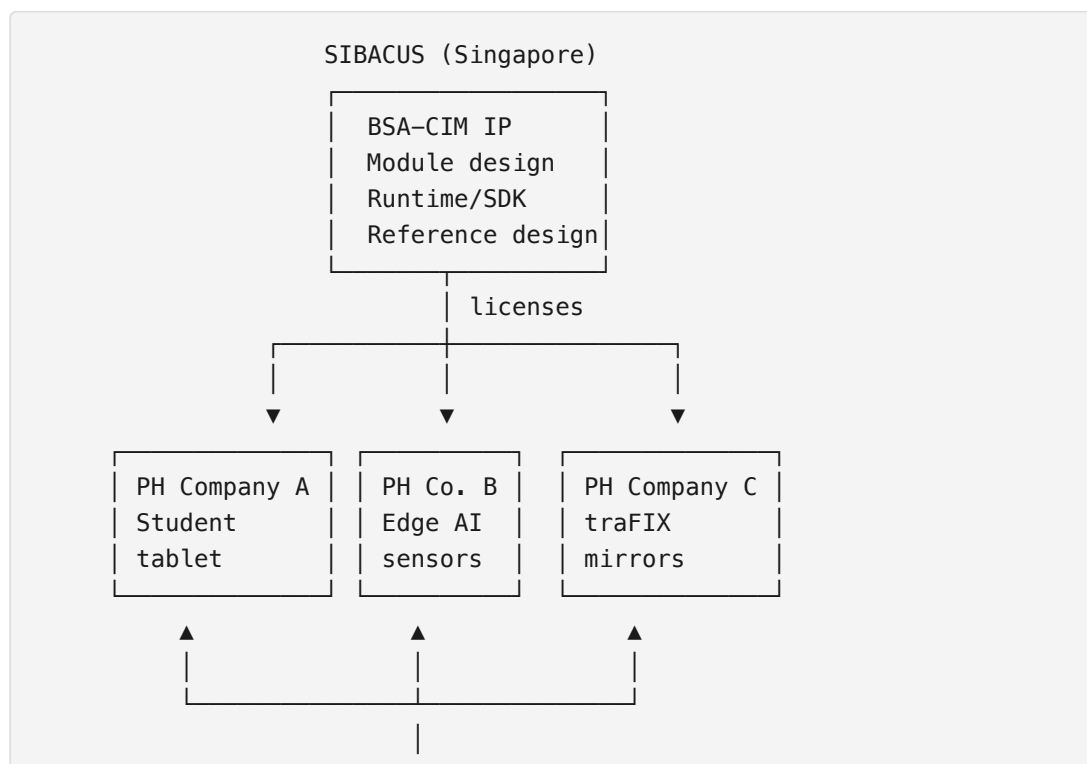
Sibacus is building the same structure for compute-in-memory:

ARM	Sibacus
Designs the processor architecture (ARMv9)	Designs the BSA-CIM architecture (module + runtime)
Licenses IP to chip companies worldwide	Licenses CIM module + runtime to product companies
Revenue: royalty per chip shipped	Revenue: royalty per module shipped
ARM's reference board (Juno) proves the IP works	S-Neo reference design proves the module works
ARM doesn't build phones	Sibacus doesn't build laptops
The ecosystem builds the products	Philippine companies build the products

The Philippine semiconductor industry has the workforce, the infrastructure, and the domestic market. What it lacks is a design ecosystem — companies that design products on a licensable IP platform. The SEED Program creates the conditions for that ecosystem: companies that take a licensed IP building block and build competitive products the world wants to buy.

What the Philippines Gets

Not one product. An **industry**.



SEED Program graduates
(engineers, designers, founders)

The SEED Program trains the people who go build those companies. Every company that ships a product with a Sibacus CIM module inside pays a licensing royalty — just like every phone with an ARM core pays ARM. The more companies, the more products, the more royalties. **Sibacus wins when the Philippine ecosystem wins.**

Why the Philippines, Specifically

ARM could have built its ecosystem anywhere. It grew in the UK because that's where the engineers were trained. The Sibacus ecosystem should grow in the Philippines because of three unfair advantages no other ASEAN country has:

1. **180+ languages that only Filipinos can serve.** The S-Neo's flagship capability — dialect translation — requires native speakers, linguistic field data, and community deployment. Silicon Valley can't buy this. Neither can Singapore, Vietnam, or Indonesia (which has its own language challenge but not the Philippines' established OSAT workforce).
 2. **The world's 6th largest semiconductor workforce — ready to level up.** Hundreds of thousands of Filipinos already work in OSAT. They understand semiconductor manufacturing. What they lack is design capability. The jump from "I test chips" to "I design chips" is smaller than the jump from zero — and the SEED Program provides the bridge.
 3. **A 110-million-person domestic market for edge AI devices.** A Philippine company building a \$299 student tablet with offline dialect translation has a built-in market that no import can serve. The product IS the market entry — and the CIM module is what makes it possible at that price point.
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The S-Neo: Reference Design, Not End Product

The S-Neo laptop and tablet is Sibacus's reference design — the equivalent of ARM's Juno development board or Google's Pixel phone (which exists to prove Android works, not to monopolize the phone market).

Purpose	Details
Proves the module works	A working \$449 laptop and \$299 tablet that ships with CIM-accelerated dialect translation
Shows OEMs what's possible	Filipino and ASEAN OEMs can see, touch, and benchmark a real product
Establishes the software stack	The runtime, driver model, and app API are proven in a shipping device
Bootstraps the ecosystem	The first product creates demand for engineers, which creates demand for the training program, which creates more companies
Can be built by a Philippine partner	Once the reference design is validated, Sibacus licenses it to a Philippine OEM for mass production. Sibacus collects module royalties; the OEM captures manufacturing and distribution margin

Sibacus's business is not building laptops. Sibacus's business is selling the module and runtime that goes inside every laptop, tablet, mirror, sensor, and edge device that a Philippine (and eventually ASEAN) product company builds.

Program Structure: ₱250M Over 3 Years

Phase 1 — University Research & Lab Buildout (Year 1): ₱95M

Investment	Amount (₱M)	Purpose
11 Research Tracks (see below)	60	Funded research across 8+ universities
RRAM Characterization Lab (UP Diliman)	12	The only RRAM lab in PH — serves the whole ecosystem
FPGA Prototyping Labs (distributed)	8	20x dev boards across 4 universities
Chip Design Workstations (distributed)	5	Linux workstations + EDA tools for 5 labs

Investment	Amount (₱M)	Purpose
SEED Fellows (10 PhD fellowships)	8	Named fellowships for the founding generation
Program Management	2	Steering committee, reviews, IP management

Phase 2 — Ecosystem Seeding (Year 2): ₱90M

Investment	Amount (₱M)	Purpose
Product Design Lab / Incubator	20	Facility where graduate teams prototype products using the CIM module — the birthplace of ecosystem companies
Reference design build	25	S-Neo FPGA prototype → first functional units
Engineering staffing (15–20 engineers)	30	Mix of Sibacus Philippines staff and incubator residents
Continued university tracks	10	Sustain linguistics, field testing, curriculum
First OEM engagement	5	Workshops with Philippine OEMs (Cherry Mobile, Cloudfone, MyPhone, or new entrants) on licensing the module

Phase 3 — First Silicon & First Ecosystem Products (Year 3): ₱65M

Investment	Amount (₱M)	Purpose
Tape-out NRE (via Singapore fab partner)	30	Mask set, engineering lots. Fabrication in Singapore; design from the Philippine team
Chip validation	10	Post-silicon testing (leveraging PH OSAT partners — full circle)

Investment	Amount (₱M)	Purpose
Curriculum national rollout	10	4-course chip design sequence at 10+ engineering schools
Incubator graduating class	10	First 2–3 ecosystem companies spin out with products in development
100-device field deployment	5	Reference design devices in Philippine schools

The 11 Research Tracks

Silicon & Architecture (feeds the module and EquaSat orbital compute)

#	Track	Target Universities	₱M	Deliverable
1	RRAM/CIM Characterization	UP Diliman (MSE, ECE), Mapua	5	Calibrated energy model from real RRAM data
2	CSD Encoding Optimization	Ateneo (Math), UP Diliman, DLSU	4	Accuracy-vs-energy Pareto curves for all workloads
4	RISC-V SoC Design	UP Diliman (ECE), Mapua, DLSU, TIP	8	Verified SoC peripheral blocks, FPGA-proven
5	CIM Rendering Pipeline	UP Diliman (CS), Ateneo, DLSU	5	1080p rendering benchmarks, FPGA frame times

Software & AI (feeds the runtime, SDK, and ASEAN AI Commons)

#	Track	Target Universities	PM	Deliverable
6	Noise-Aware Training	Ateneo (CS), UP Diliman	4	Production fine-tuning recipes for ecosystem models
7	Residency Runtime	UP Diliman (CS), DLSU, Mapua	5	Working runtime on RISC-V Linux — the SDK ecosystem companies use

Language & Market (the Philippine unfair advantage for ASEAN language models)

#	Track	Target Universities	PM	Deliverable
3	Dialect Translation	UP Diliman (Linguistics), UP Mindanao, MSU-IIT, U San Carlos, UP Visayas	9	Datasets for 12+ PH languages — open resource for the entire ecosystem
9	Field Testing & Deployment	UP system (regional campuses)	8	100-device real-world deployment data

Hardware Integration & Product (ground segment builders)

#	Track	Target Universities	PM	Deliverable
8	PCB & Module Engineering	Mapua, UP Diliman, Batangas State	5	Working reference design motherboard

#	Track	Target Universities	PM	Deliverable
10	Curriculum Development	UP Diliman (lead), Mapua, DLSU, Ateneo	4	4-course chip design sequence for national adoption

NEW: The Ecosystem Track

#	Track	Target Universities	PM	Deliverable
11	Product Design & Entrepreneurship	Ateneo (John Gokongwei School of Management + CS), UP Diliman (Engineering + Business), DLSU (Business + ECE)	3	Teams of 3–5 graduate students designing real products on the CIM module platform. Output: 5–8 product concepts validated through prototyping, 2–3 viable enough to spin out as companies

Track 11 is the one that makes this an ecosystem program, not just a research program. It's where engineering graduates team up with business students to design products that act as the ground segment for EquaSat — a student tablet syncing via EQUANET, an agricultural sensor feeding HARVEST A-EYE, a fisheries monitoring node connecting to OCEAN A-EYE — all running on the Sibacus CIM module. The best teams become ground segment operating companies.

SEED Fellows Program

10 named PhD fellowships — the founding generation:

Focus	Slots	They Graduate Into
RRAM Device Physics & CIM Architecture	2	Sibacus Philippines or ecosystem chiplet companies
RISC-V SoC Design & Verification	2	Philippine SoC design houses
Computational Linguistics (Philippine Languages)	3	Ecosystem companies building language products
Machine Learning (Edge AI)	2	Ecosystem companies building AI-at-the-edge products
CIM Rendering / Computer Graphics	1	Ecosystem companies or Sibacus Philippines

Each fellow gets full tuition, ₱40,000/month stipend, conference travel, and a 3-month rotation with Sibacus engineering. **They are trained on the platform so they can build on the platform** — like ARM university program graduates who go work at Qualcomm, not at ARM.

Sibacus’s Revenue Model

Like ARM, Sibacus earns on every device shipped:

Revenue Stream	Mechanism	Analogy
Module licensing fee	Per-unit royalty on every CIM module shipped in a product	ARM per-core royalty
Module sales	Sibacus (via Singapore fab) sells physical CIM modules to OEMs	ARM doesn’t do this — but Sibacus controls the fabrication relationship
Runtime/SDK license	Annual license for the residency runtime and developer tools	ARM Developer Suite
Reference design license	One-time fee for OEMs to manufacture the S-Neo or derivative designs	ARM reference board licensing

Revenue Stream	Mechanism	Analogy
Support & integration	Engineering services for OEMs integrating the module	ARM professional services

The more Philippine companies build products, the more modules ship, the more Sibacus earns. The SEED Program isn't charity — it's ecosystem investment with a direct revenue feedback loop.

Licensing Strategy: Head Start, Not Lock-Out

The Philippines Gets Preferential Terms — Not Exclusive

Sibacus offers the Philippines a **head start** on licensing, conditional on the Philippines investing in itself through this program:

Licensing Tier	Who Qualifies	Terms
Pioneer License (Years 1–3)	Philippine-registered companies; SEED Program spin-outs	Reduced royalty rate, early module access, priority engineering support, reference design license included
Standard License (Open)	Any company, any country	Standard royalty rate, standard support

The head start is earned, not given. If the Philippines invests in the SEED Program — trains the engineers, builds the labs, seeds the companies — then those companies get preferential terms. If the investment doesn't materialize, the licensing opens to everyone at standard terms. This creates urgency: *invest now, or the advantage goes elsewhere.*

Why Non-Exclusive Is the Point

Exclusive licensing would limit Sibacus's revenue and the ecosystem's growth. Non-exclusive preferential licensing does something more powerful — **it attracts foreign direct investment to the Philippines:**

FDI Scenario	How It Works
A Japanese edge-AI company wants to build agricultural sensors on CIM	They can license from Sibacus at standard terms anywhere — but if they set up in the Philippines, they get Pioneer terms, access to SEED-trained engineers, and proximity to the reference ecosystem
A Korean consumer electronics firm wants a CIM-powered tablet for ASEAN markets	Same: standard license from anywhere, but preferential terms and a trained workforce if they build in the Philippines
A Singaporean IoT startup wants Physical AI devices for smart cities	Pioneer terms available through a Philippine subsidiary or partnership
A multinational wants to onshore edge computing for data sovereignty	The Philippines has the trained workforce, the preferential license, and the OSAT infrastructure to assemble the final product

The pitch to DTI/BOI: *“This program doesn’t just build Filipino companies. It makes the Philippines the most attractive place in ASEAN to build Physical AI and edge computing products — because the trained engineers, the preferential licensing, and the assembly infrastructure are all in one place.”*

Physical AI / Edge: The Market Category

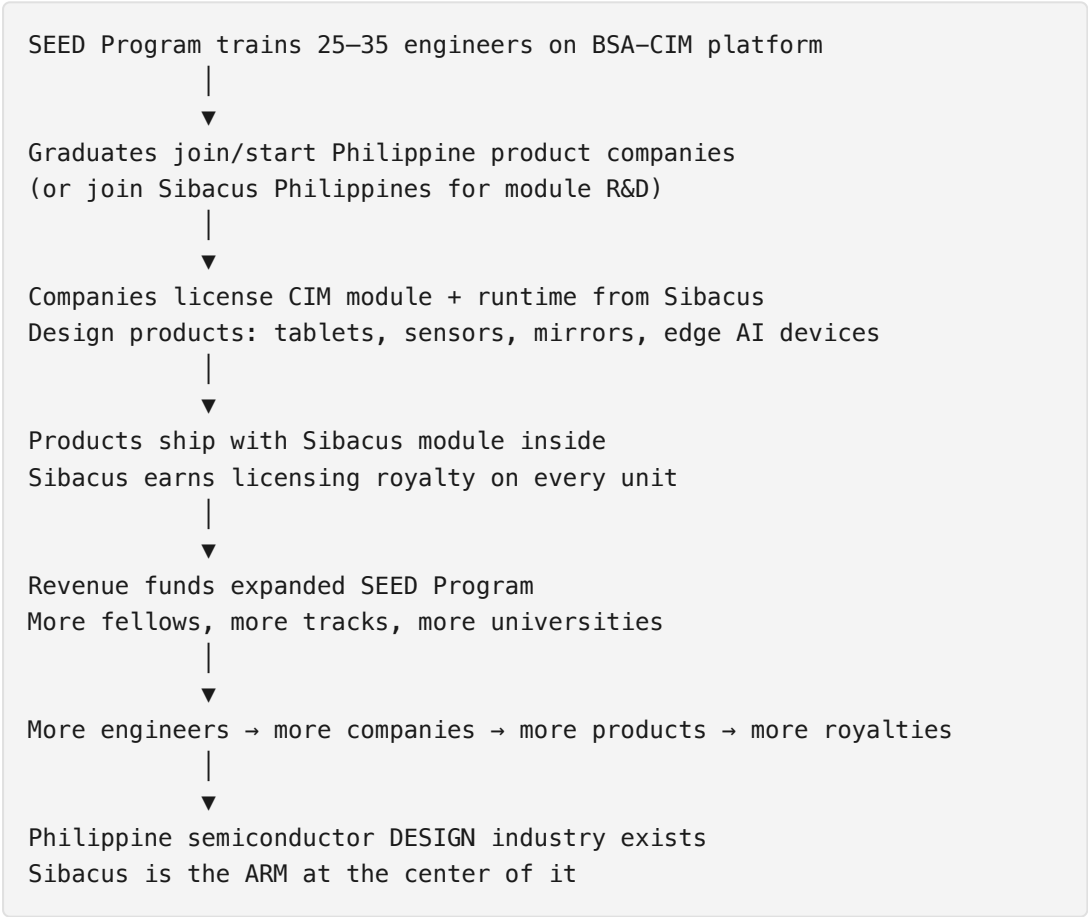
The CIM module isn’t limited to laptops. It’s a platform for any device that needs to compute at the edge — private, low-power, always-on:

Product Category	Example	Why CIM Fits
Education	Student tablets with offline AI tutoring	Low cost, battery life, dialect translation
Agriculture	Crop monitoring sensors with on-device ML	Always-on, no connectivity required, weatherproof
Fisheries	Catch monitoring and compliance devices	Remote deployment, solar-powered, edge inference
Healthcare	Barangay health screening devices	Privacy-first (patient data never leaves device)
Smart infrastructure	Traffic monitoring, flood early warning	Real-time inference at the node, not in the cloud
Retail / logistics	Inventory and supply-chain edge nodes	Low-power, high-volume deployment

Product Category	Example	Why CIM Fits
Consumer	Smart home devices with local AI	No cloud dependency, works during typhoons

Every one of these is a potential product company. Every one ships with a Sibacus module. Every one is a licensing revenue stream. **The Philippines becomes the hub for Physical AI product development in ASEAN** — not because of a government mandate, but because the trained engineers, the preferential license, and the reference ecosystem are there.

The Flywheel



Funding Strategy

The Ask: ₱250M (\$4.5M) — Zero Sibacus Equity

Source	Contribution	What They Get
EDB Singapore	₱30–55M	Funds Sibacus's contribution; every ecosystem product ships a Singapore-fabricated CIM module — demand creation for Singapore's fab sector
ADB Technical Assistance	₱30–55M	Capacity building in a founding DMC; Strategy 2030 alignment
DOST-PCIEERD + DICT + CHED	₱40–60M	National semiconductor design capability; curriculum for every engineering school
Philippine Corporate Partners	₱40–60M	The companies that built themselves on Filipino labor invest in upgrading that labor to design-tier. Tax-deductible. BOI incentive-aligned
Sibacus (in-kind)	₱50–75M	IP access, repo, mentorship, equipment, visiting researcher slots, reference design

TIP: The Singapore–Philippines symbiosis: Singapore funds Sibacus's ecosystem contribution through EDB because every CIM module is fabricated at GlobalFoundries Singapore. The Philippines designs products; Singapore manufactures the silicon inside them. Both countries profit from the same flywheel — and neither is asking the other for equity.

Corporate Partners: Who Should Fund This

The institutions that have built themselves on Filipino workers and consumers should fund the upgrade from assembly to design:

Sector	Companies	Why They Should Fund SEED
OSAT / Semiconductor	Amkor PH, ASE PH, Texas Instruments PH, Analog Devices PH	They've made billions on Filipino assembly workers. Fund the upgrade from "I test chips" to "I design chips"
Conglomerates	Ayala, SM, PLDT/MVP, Aboitiz, JG Summit	Built empires on the Filipino consumer economy. This creates the high-value jobs that grow that economy
Banks	BDO, BPI, Metrobank	They process billions in OFW remittances. Fund the economy that brings those workers home
Telcos	Globe, Smart/PLDT	Their revenue is built on Filipino connectivity. Edge AI devices are the next connectivity platform

What corporate partners get: Tax deductions, BOI incentive alignment, named labs/fellowships, and — when SEED Ventures launches — **first-look equity access** to the companies the program produces.

Phase 2: SEED Ventures (Future)

Once the SEED Program produces its first companies, Sibacus launches **SEED Ventures** — a fund that invests in ecosystem companies for equity. This is where individual investors participate:

- **Corporate partners** → equity stakes in portfolio companies (not donations)
- **Individual Filipinos** (including diaspora) → invest for **equity and retirement returns**, not charity
- **No exploitation of patriotism** — this is ownership, not philanthropy

IMPORTANT: Don't ask workers to donate to a program that doesn't exist yet. The institutions that profited from their labor fund Phase 1. When the program produces real companies with real revenue, individuals invest for real returns. That's the ethical sequence.

Risk Isolation

Protection	How
Product independence	S-Neo ships on Sibacus’s own timeline. University tracks accelerate, never gate
Financial separation	SEED Foundation is a separate legal entity. Sibacus contributes in-kind, not cash
Milestone-based funding	Non-performing tracks get cut. Two missed milestones → remediation → closure
Sibacus exit right	Can withdraw in-kind contribution at any time; keeps all licensed foreground IP to date
Reputational firewall	Program is the Foundation’s program. Sibacus is “founding industry partner”

The one-sentence test: If every university track shuts down tomorrow, does Sibacus still ship the module? **Yes.** The program makes the ecosystem happen faster. It doesn’t make Sibacus possible or impossible.

Timeline

	Year 1 (P95M)	Year 2 (P90M)	Year 3 (P65M)
Q1	MOUs signed, Fellows selected	Product Design Lab opens	Tape-out submitted
Q2	Research tracks launch, labs built	FPGA prototype begins; OEM workshops	Curriculum at 10+ schools
Q3	First milestone reviews	Field testing begins	First silicon received
Q4	Mid-year results	Incubator teams forming	First ecosystem companies spin out

The Pitch in One Paragraph

Sibacus has designed a compute-in-memory architecture that makes AI run at a fraction of the energy, cost, and complexity of conventional GPUs. Like ARM, Sibacus licenses this IP — it doesn't build end products. The SEED Program trains the Philippine engineers and seeds the Philippine companies that build products on this platform: student tablets with offline dialect translation, agricultural sensors, edge AI devices, and more. Every product ships with a Sibacus module inside — fabricated in Singapore, designed in the Philippines — generating licensing revenue for both countries. Funded by institutional partners (EDB Singapore, ADB, DOST, and Philippine corporations), this ₱250M program is the capability layer that Pax Silica's infrastructure needs to succeed. It creates the design capability the Philippines has needed for fifty years and builds a self-sustaining ecosystem where Philippine innovation and Sibacus IP grow together.

The Philippines has been building other countries' chips for 50 years. This program builds the companies that put Philippine-designed intelligence inside them.

A ₱2.5B AI facility at New Clark City got zero bidders — because there are no companies to fill it. The SEED Program creates them. For one-tenth the cost.

Sibacus Edge Ecosystem Development. We plant the seeds. The Philippines grows the industry.