

A Few Lessons from Venezuela: Introducing a New Path of Appropriate Farming and Appropriate Renewable Energy

¹Victor Christianto* and ²Florentin Smarandache

Author's Affiliation

¹Malang Institute of Agriculture, East Java, Indonesia.

E-mail: victorchristianto@gmail.com

²Dept. Mathematics and Sciences, University of New Mexico, Gallup, NM, USA.

E-mail: smarand@unm.edu

***Corresponding Author:**

Victor Christianto

Malang Institute of Agriculture, East Java, Indonesia.

E-mail: victorchristianto@gmail.com

Keywords:

Development Economics, Appropriate Farming Technologies, Appropriate Technologies, Natural Resources Curse.

Abstract

In development economics literatures, there is a known term for developing countries which tend to mismanage natural resources, that term is called natural resources curse. And two examples which have been discussed quite often is Venezuela and Norway. Here we also discuss other countries as well, including Argentina and a few lessons for Indonesia in choosing the next course of development path, especially with appropriate farming and appropriate renewable energy.

How to cite this article: Christianto V. and Smarandache F. (2024). A Few Lessons from Venezuela: Introducing a New Path of Appropriate Farming and Appropriate Renewable Energy. *Bulletin of Pure and Applied Sciences-Botany*, 43B(1), 14-23.

1. INTRODUCTION

In development economics literature, there is a number of discussions with regard to the so-called natural resource curse. The present article brings this theme by comparing a few notable countries in this regard, including Venezuela, Norway etc.

To put this article into context, Indonesia's recent election brings one of several people-centered programs to the forefront. Certain programs have been promised including subsidized (free) food program for the underprivileged, particularly mothers and schoolchildren (in rural areas), which sounds enticing, promising immediate relief. While we should admit good effects of such programs, before succumbing to such alluring proposals, it's crucial to consider the potential pitfalls,

drawing lessons from Venezuela's experience with similar populism under Hugo Chávez.

Let us consider first Venezuela, i.e. Chávez's rise to power was fueled by promises of social programs aimed at alleviating poverty and inequality. Missions like Barrio Adentro and Mercial provided subsidized food and healthcare, initially improving living standards for many. However, these programs were largely funded by Venezuela's abundant oil revenue, creating an illusion of prosperity.

The underlying issue was the lack of sustainable economic planning. Oil dependence left Venezuela vulnerable to price fluctuations. When oil prices plummeted in the late 2000s, the government, heavily reliant on oil income to fund its populist programs, faced a severe fiscal crisis.

A Few Lessons from Venezuela: Introducing a New Model of Appropriate Farming and Appropriate Renewable Energy

The consequences were devastating. The government printed money to cover the deficit, leading to hyperinflation. Food shortages became commonplace, negating the initial gains from subsidized programs. Basic necessities became unaffordable, plunging the country into economic turmoil. The rest is history.

2. WHAT NATURAL RESOURCE CURSE TERM IS: WHEN RICHES BRING THORNS

Let us suppose a country blessed with bountiful diamond mines, gushing oil reserves, or vast timberlands. You'd expect thriving economies and happy citizens, right? But the reality can be more like a fairy tale gone wrong. This paradoxical situation, where abundant natural resources lead to economic woes and social strife, is known as the (natural) **resource curse**.

So, what is this resource curse? - It's the tendency for resource-rich countries to underperform economically, despite their seemingly golden ticket. Instead of flourishing, they often experience:

- **Stunted growth:** Resource dependence neglects other sectors, making the economy vulnerable to price fluctuations.
- **Inequality and corruption:** Resource wealth concentrated in few hands fuels inequality and breeds corruption.
- **Conflict and instability:** Power struggles over resources can lead to civil wars and political instability.
- **Environmental degradation:** Unsustainable extraction practices wreak havoc on ecosystems and livelihoods.

How that can happen: Many factors contribute to the curse's grip:

- **Inflation:** Resource booms inflate the currency, making other exports uncompetitive and hindering diversification.
- **Weak institutions:** Weak institutions struggle to manage resource wealth transparently and effectively.
- **Lack of investment:** Instead of investing in education, infrastructure, and other sectors, revenue gets squandered.

- **Conflicts:** Competition for resources fuels violence and political instability, deterring further investment.

3. AN OUTLINE ON HOW A COUNTRY CAN BREAK THE NATURAL RESOURCE CURSE

The good news is, the curse isn't inevitable. Countries can find ways around it with:

- **Diversification:** Building strong, diverse economies not solely reliant on resource extraction.
- **Transparent governance:** Implementing strong institutions, combating corruption, and ensuring resource revenue benefits all.
- **Investing in the future:** Channeling resource wealth into education, infrastructure, and sustainable development.
- **Community involvement:** Empowering local communities to participate in decision-making and benefit from resource extraction.

Examples like Norway and Botswana show that with foresight and good governance, resource wealth can blossom into sustainable prosperity. By understanding the curse and taking proactive steps, resource-rich countries can turn their thorns into roses, ensuring their riches translate into lasting well-being for all.

As Elsgard wrote [1], previous studies show that *institutions* are an important determinant for the impact of the resource curse in resource dependent countries. By a comparative analysis, large differences in institutional quality are revealed. Transparency, accountability and a strong rule of law are found to be among the features that distinguish the successful countries. These differences translate into different economic policies.

While Norway and Botswana have exhibited prudent fiscal management, literature has shown that government spending in Venezuela in particular, have been procyclical and unproductive. Venezuela on the other hand, seems unlikely to pursue policies that can promote sustainable growth.

4. A FEW LESSONS FROM VENEZUELA'S PATH TO INDONESIA

While the following discussion may not be conclusive, Venezuela's predicament serves as a stark reminder of the "curse of natural resources." When natural resource wealth funds populist programs without long-term economic diversification, it creates a fragile prosperity, vulnerable to external shocks.

It is known, that Indonesia is a nation rich in natural resources, with oil, gas, coal, and minerals being major contributors to the country's economy. However, the reliance on these (natural) resources has also led to challenges in the form of environmental degradation, economic instability, and corruption. As such, Indonesia can learn from the experiences of other resource-rich countries such as Venezuela to improve national resilience and avoid the natural resources curse.

One of the key lessons that Indonesia can learn from Venezuela is the importance of diversification. Venezuela's economy has been heavily reliant on oil exports, which made up around 98% of the country's export revenue at its peak. However, this dependence on oil has left Venezuela vulnerable to fluctuations in oil prices and the global oil market. When oil prices fell sharply in 2014, Venezuela's economy went into a deep recession, with hyperinflation and shortages of basic goods.

Another lesson that Indonesia can learn from Venezuela is the importance of good governance and anti-corruption measures. Corruption has been a significant problem in both countries, with officials using their positions of power to enrich themselves at the expense of the public (sometimes dubbed as *rent-seeking*). In Venezuela, corruption has been a major factor in the mismanagement of the country's oil wealth, with funds being diverted away from public services and infrastructure projects.

To avoid the same fate, Indonesia needs to strengthen its anti-corruption measures and this can be achieved by improving transparency and accountability, strengthening the rule of law,

and increasing public awareness and participation in governance.

Finally, Indonesia can learn from Venezuela's experience in building resilience in the face of economic and political challenges. Despite its economic troubles, Venezuela has maintained a strong sense of national pride and resilience, with many citizens coming together to support each other during difficult times.

To build similar resilience, Indonesia needs to foster a sense of national unity and encourage cooperation and solidarity among its citizens. This can be achieved through initiatives such as community empowerment programs, disaster preparedness training, and social safety nets.

To summarize, here's how Venezuela's experience translates to Indonesia's context:

- 1. Fiscal Sustainability:** While offering subsidized food program for schoolchildren may appear compassionate, its long-term financial viability should be meticulously assessed (Note: alternatively, malnutrition among schoolchildren can be reduced by introducing several nutrients to staples; see *Appendix* section). Can Indonesia afford such a program without jeopardizing other crucial investments or accumulating unsustainable debt?
- 2. Economic Diversification:** Is the proposed program part of a broader strategy to diversify the economy and reduce dependence on specific sectors like natural resources? Relying solely on resource wealth to fund social programs mirrors the Venezuelan misstep.
- 3. Targeting and Efficiency:** Are the proposed programs well-targeted to truly reach the most vulnerable? Can they be implemented efficiently to avoid leakages and waste, ensuring the intended beneficiaries receive the full benefit?
- 4. Transparency and Accountability:** Are the programs transparently designed and implemented, with clear accountability mechanisms? This is crucial to prevent misuse of funds and ensure they achieve their intended objectives.

5. EXAMINING MILEI'S PROPOSALS FOR ARGENTINA'S DEVELOPMENT

Developing economies often find themselves trapped in between leftist populism, promising

immediate relief through state intervention, and laissez-faire capitalism, prioritizing unrestricted markets. In this regard, while it is too early to conclude for the whole programs introduced by the new government, Argentina's recent political landscape presents an intriguing alternative: Javier Milei's economic reform program. While the term "development from below" might not resonate well within traditional development discourse, and while the results of Milei's liberal stance approach to recover national economy shall be seen later on, analyzing Milei's proposals within the context of Argentina's challenges offers valuable insights for other developing nations seeking paths beyond these two dominant paradigms.

Milei's program hinges on two keys:

1. Support for the Business Community: This includes measures like reducing taxes, easing regulations, and fostering a more favorable business environment. The goal is to stimulate economic growth and employment, creating a ripple effect that benefits all citizens.

2. Reduction of Government Interference: Advocating for "*injerancias indebidas*" (unlawful interference), Milei seeks to minimize government intervention in the economy. This aims to create a level playing field, allowing smaller businesses to compete fairly and thrive.

While these proposals sound promising, several questions warrant deeper analysis:

1. Balancing Growth and Equality: Can prioritizing business growth alone translate into equitable development for all? While job creation is crucial, addressing income inequality and ensuring social safety nets remain critical considerations.

2. Regulatory Reform, Not Deregulation: Reducing unnecessary regulations is beneficial, but complete deregulation carries risks. Striking a balance between fostering business activity and ensuring consumer protection and environmental sustainability is key.

3. Contextualizing Argentina's Experience: Argentina's specific economic and political context heavily influences the potential impact of these reforms. What works in Argentina might not translate directly to other developing nations with vastly different circumstances.

Instead of simply rejecting populism, developing countries can learn from Milei's proposals:

1. Shifting Focus: Rather than solely relying on state intervention, fostering a conducive environment for small businesses can empower individuals and drive sustainable economic growth.

2. Streamlining Regulations: Evaluating and removing unnecessary regulations can ease bureaucratic burdens and unlock the potential of smaller players in the market.

3. Striking a Balance: The key lies in creating a balanced approach that promotes **both** economic growth **and** social justice. Investing in education, healthcare, and social safety nets ensures that growth benefits everyone, not just a select few.

6. AN ALTERNATIVE ROUTE OF GRASS-ROOTS TRANSFORMATION INSPIRED BY YUNUS

Developing nations often find themselves entangled in the debate between top-down, government-driven interventions and laissez-faire capitalism. Both approaches have their limitations, leaving communities searching for alternatives. This article proposes a different pathway, drawing inspiration from the work of Professor Muhammad Yunus and Masanobu Fukuoka to create a "**healthy circle**" of **empowerment**: a self-sustaining, community-driven approach to fostering education, economic progress, and environmental awareness.

Instead of relying solely on government programs or unchecked markets, the "healthy circle" emphasizes a cyclical process of:

1. **Re-conscientization**: This initial step focuses on raising awareness and critical thinking within communities. Individuals reflect on their current situation, needs, and aspirations.

2. **Appropriate Education**: Building on this newfound awareness, communities identify their educational needs. This may involve acquiring skills in areas like financial literacy, sustainable agriculture, or basic healthcare. Education goes beyond formal schooling, encompassing learning from local experts, elders, and peers.

3. Appropriate Technologies: Equipped with knowledge and skills, communities explore solutions that align with their environment and resources. Inspired by Masanobu Fukuoka's natural farming methods, the focus may shift towards practices that are low-cost, adaptable, and minimize environmental impact.

4. Collective Action: The benefits of these initiatives, whether increased agricultural yields or improved financial management, are reinvested back into the community. This "collection" fuels further re-conscientization, education, and technological exploration, creating a self-sustaining cycle of progress.

The "healthy circle" holds several advantages:

•**Community-driven:** By empowering communities to identify their needs and solutions, the approach fosters ownership and long-term sustainability.

•**Scalable and adaptable:** This cyclical model can be adapted to diverse contexts and needs, from rural villages to urban communities.

•**Holistic:** Addressing education, economics, and the environment simultaneously creates a more comprehensive and resilient path to development.

Drawing inspiration from Grameen Bank, microfinance programs can be integrated into the cycle, providing access to capital for community-led ventures. This financial inclusion further empowers individuals and communities to take charge of their development.

This approach is not without its challenges. Facilitating dialogue, identifying appropriate technologies, and ensuring equitable participation within communities require careful planning and ongoing support.

In conclusion, the "healthy circle" offers a promising alternative to top-down and market-driven development approaches. By empowering communities to learn, act, and reinvest in their own well-being, it fosters a more just, sustainable, and equitable path to progress. Let us move beyond the limitations of populism and embrace the transformative power of grassroots empowerment, drawing inspiration from the wisdom of M. Yunus and

Fukuoka. This may just be the key to unlocking the true potential of development from below.

Moreover, as previously noted by Elsgard, by a comparative analysis, large differences in institutional quality are revealed. Transparency, accountability and a strong rule of law are found to be among the features that distinguish the successful countries. These differences translate into different economic policies. While Norway and Botswana have exhibited prudent fiscal management, government spending in Venezuela in particular, have been procyclical and unproductive. (Elsgard) [1]

Therefore, allow us to outline three possible approaches to *improve accountability* to publicly-funded schemes, which are mostly prone to be mismanaged. Those steps include:

(i) Thorough implementation of ISO-37001.

Corruption is a major challenge for many countries around the world, especially developing countries. It undermines public trust in government institutions, reduces economic growth, and often leads to social unrest. One effective way of combating corruption is by implementing anti-corruption measures such as ISO 37001 on a nationwide scale. Here are some practical suggestions for implementing these measures:

Establish a comprehensive anti-corruption strategy: The first step in implementing anti-corruption measures is to develop a comprehensive strategy that outlines the goals, objectives, and activities required to combat corruption. This strategy should involve key stakeholders, including government officials, civil society organizations, and the private sector.

Train and educate key stakeholders: Anti-corruption measures can only be effective if all stakeholders are aware of their responsibilities and understand how to implement them. Training and education programs should be provided to government officials, civil society organizations, and the private sector to ensure they have the necessary skills and knowledge to implement anti-corruption measures.

A Few Lessons from Venezuela: Introducing a New Model of Appropriate Farming and Appropriate Renewable Energy

Implement anti-corruption policies and procedures: Anti-corruption policies and procedures should be implemented at all levels of government and within the private sector. This includes developing codes of conduct, establishing whistle-blower protection mechanisms, and implementing measures to prevent conflicts of interest.

Monitor and evaluate progress: Regular monitoring and evaluation are essential to ensure that anti-corruption measures are effective. Key performance indicators should be established to measure progress and identify areas where improvements are needed.

Promote transparency and accountability: Transparency and accountability are key components of any anti-corruption strategy. Governments should establish mechanisms for public oversight, including access to information, and ensure that corruption cases are investigated and prosecuted.

Foster a culture of integrity: Finally, fostering a culture of integrity is essential to combating corruption. This involves promoting ethical behavior, encouraging responsible citizenship, and creating a sense of social responsibility among all stakeholders. (GIA Center)[2]

(ii) Encourage citizen journalism, especially with the help of ubiquitous video-sharing apps.

Imagine a world where citizens are not just passive observers of public-funded schemes, but active watchdogs, armed with the power of their smartphones and a thirst for transparency. This world is closer than you think, thanks to the rise of citizen journalism and ubiquitous video-sharing apps.

Public-funded development schemes, vital for infrastructure, development, and social welfare, often suffer from opacity and accountability lapses. This is where citizen journalism steps in, wielding the power of smartphones and social media to shine a light on these issues.

Ubiquitous video-sharing apps like YouTube and Instagram are no longer just platforms for entertainment. They have become powerful

tools for citizen journalists to document problems, gather evidence, and share their findings with the world. A concerned citizen filming a shoddy construction site or capturing an instance of resource misuse can instantly amplify their voice, reaching local authorities, media outlets, and a wider public audience.

The benefits of citizen journalism in promoting transparency and accountability are numerous:

- **Increased Scrutiny:** By bringing everyday citizens into the fold, more eyes are watching public projects, leading to greater vigilance and proactive identification of issues.
- **Real-time Reporting:** Citizen Journalists can capture events as they unfold, providing immediate updates and unfiltered perspectives.
- **Wider Reach:** Social media platforms allow for rapid dissemination of information, circumventing traditional media gatekeepers and reaching broader audiences.
- **Amplified Voices:** Citizen Journalism empowers individuals and communities to hold authorities accountable, giving them a platform to demand answers and action.

However, it's crucial to acknowledge the challenges:

- **Verification and Accuracy:** Misinformation and unverified claims can be detrimental. Citizen journalists need to be equipped with skills to distinguish facts from fiction.
- **Safety and Security:** Raising concerns about powerful entities can come with safety risks. Training and support mechanisms are essential for citizen journalists' safety.
- **Sustainability and Consistency:** Engaging in citizen journalism requires time and effort. Fostering a culture of active participation and supporting citizen journalists with resources is crucial.

Moving forward, encouraging citizen journalism requires a multi-pronged approach:

- **Media Literacy Education:** Equipping citizens with the skills to critically evaluate information and verify claims is essential.

- **Technology Support:** Providing training on using video-sharing apps effectively and securely can empower citizen journalists.
- **Legal Safeguards:** Protecting citizen journalists from harassment and intimidation is crucial for fostering a safe environment for raising concerns.
- **Collaborative Platforms:** Developing dedicated platforms for citizen journalists to share information, connect, and collaborate can amplify their impact.

By embracing citizen journalism and its potential, we can create a more transparent and accountable society, where public-funded projects truly serve the communities they are intended for. Let's turn the ubiquitous video-sharing apps into tools for empowerment, ensuring that every citizen becomes a watchdog, shaping a brighter future for all.

(iii) Individual Power Producers are able to drive Rural Development in Indonesia. Imagine remote villages in Indonesia, pulsating with life and opportunity, powered not by distant grids, but by the ingenuity of their own residents. This vision of **individual power producers**, driving rural development, is no longer a distant dream, but a burgeoning reality driven by **citizen-funded renewable energy**. Let's explore how microhydro power, gravitational vortex power plants (GWVPP), and small-scale solar deployments empower individuals and transform communities.

Citizen-Funded Microhydro Generator: Harnessing flowing water in rivers and streams, microhydro systems offer clean, sustainable power for individual households or even entire villages. Communities can **collectively fund** the installation and maintenance, creating localized energy independence and fostering a sense of ownership. Imagine farmers using microhydro-powered irrigation pumps to boost crop yields, or students studying under LED lights powered by their own mini-hydro plant.

Gravitational Vortex Power Plant, An Intriguing Innovation: While still in its early stages, the concept of gravitational vortex power plants holds immense potential for rural communities. By utilizing natural water flow

and gravity, these systems could generate clean electricity without dams or turbines, promoting **healthy soil and crop growth** thanks to revitalized water cycles. This technology, if proven viable, could be a game-changer for rural areas with limited water resources.

Small-Scale Solar Power: Rooftop solar panels represent a tried-and-tested solution, empowering individual households to generate their own electricity. With government initiatives and **microfinancing options**, solar energy is becoming increasingly accessible. Imagine small businesses powered by the sun, generating income and illuminating possibilities for rural entrepreneurs.

The Significance of Individual Power Producers: This shift towards individual power producers goes beyond just electricity. It fosters **community ownership, strengthens local economies, and empowers individuals** to become architects of their own development. Additionally, it promotes **environmental sustainability**, reducing reliance on fossil fuels and protecting precious ecosystems.

7. CHALLENGES AND OPPORTUNITIES

While the future is bright, challenges remain. Access to financing, technical expertise, and maintenance support need to be addressed. Collaboration between communities, government agencies, and NGOs is crucial to unlock the full potential of this empowering movement.

Indonesia, with its vast renewable energy potential, is perfectly positioned to lead the way. By embracing individual power producers and their citizen-funded renewable energy solutions, the nation can illuminate rural communities, empower its people, and pave the way for a sustainable and prosperous future.

Moreover, although it is often recognized too late, there is ample of evidences that overemphasizing technological progress can impose *too fast cultural changes* which may be counterproductive to the common people. While the following discussion may be not conclusive, it seems worth noting that there are several

A Few Lessons from Venezuela: Introducing a New Model of Appropriate Farming and Appropriate Renewable Energy

problems with growth theory a la Solow-Swan theory.

The Solow-Swan growth model is a neoclassical economic model that explains economic growth as a function of capital accumulation, population growth, and technological progress. This model has been influential in understanding economic growth, but has also been criticized for its focus on external growth factors, such as capital accumulation and technological progress.

However, the exogenous model began to receive criticism from other economists since the 1990s. Although the idea of the role of endogenous factors in economic growth has long been known. Even Adam Smith's thoughts regarding labor specialization can be grouped into this thought.

Historical data in this country suggests that biodiversity and cultural diversity are both assets that must be managed carefully.¹ Both play an important role in maintaining the continuity and sustainability of life. For example, the decreasing number of tropical forests in this country not only has an impact on the ecosystem, but also has the potential to disrupt the quality of human life.

Additionally, increasing evidence suggests that cultural diversity and biodiversity can play an important role in driving economic growth. As for the arts and culture industry, according to a report from the Center for Economics and Business Research (CEBR) published in 2019, the impact of the arts and culture industry on the British economy is very significant. This report not only focuses on sectoral aspects, but also examines the more comprehensive economic implications of the contribution of arts and culture to economic growth in the UK. Therefore, let us consider that the proposed Solow-Swan growth model can be extended to include cultural heritage and biodiversity by adding

them as additional growth factors. This can be done by creating a new variable that represents the total stock of cultural heritage and biodiversity in an economy.

These variables can then be added to the model's production function, along with capital accumulation, population growth, and technological progress. The following equation can be used to create a modified Solow-Swan growth model with cultural heritage and biodiversity:

$$Y = K^a + CH^b + BD^c, \quad (1)$$

where:

Y stands for economic output,

K stands for capital availability,

CH stands cultural heritage stocks,

BD stands for natural biodiversity stocks;

a, b, and c are constants representing capital marginal product, cultural heritage products and services, and biodiversity resource values.

The above extended Solow-Swan equation can be generalized further to become:

$$Y = \sum_{i=1,2,3} c_i K_i^{n_i} \quad (2)$$

The equation proposed above, shows that economic output is a function of capital stock, cultural heritage, and biodiversity values. The marginal product of each factor of production is represented by a constant. The capital constant is a, cultural heritage constant is b, and the biodiversity constant is c.

8. CONCLUDING REMARK

Learning from Venezuela's experience emphasizes the need for responsible, sustainable, and well-planned policies that address root causes of poverty and inequality, while ensuring long-term economic stability and avoiding the pitfalls of populism.

In contrast, Argentina's new political landscape presents a unique opportunity to examine alternative development models. While Milei's program raises crucial questions, its focus on empowering small businesses and reducing unnecessary regulations offers valuable lessons

¹cf. "Warisan budaya dunia mesti dijaga," *Harian Kompas*, Jumat 26 April 2024, p. 10; also Gurcharan Singh. *The Plant Systematics: An Integrated Approach*. Enfield, New Hampshire: Science Publishers, 2010.

for developing nations seeking to move beyond the limitations of populism and traditional interventionism. The path forward lies in crafting a nuanced approach that fosters economic growth while ensuring equitable development for all citizens.

We outline a number of suggestions which can be considered to be implemented, including wide scale adoption of ISO-37001. By following these practical suggestions, governments can significantly reduce corruption and improve the overall well-being of their citizens.

Moreover, we believe that Indonesia, with its vast renewable energy potential and cultural and biodiversity richness, is perfectly positioned to lead the way. By embracing individual power producers and their citizen-funded renewable energy solutions, the nation can illuminate rural communities, empower its people, and pave the way for a sustainable and prosperous future.

Only then can Indonesia chart a course towards inclusive and sustainable development for all its citizens.

Acknowledgement:

This short review was written with assistance from a large language model/AI.

Version 1.0: 5th Feb, 2024.

Version 1.1: 14th Feb. 2024, pk. 17:07

Version 1.2: 26th April 2024, pk. 12:58

VC & FS

REFERENCES

1. T. Elsgard. Avoiding resource curse. *Unpublished Master thesis, University of Agder*. <https://uia.brage.unit.no/uia-xmlui/handle/11250/219870>
2. GIA Center. *Overview of International Standards ISO-37001*. Url: https://giacentre.org/chess_info/uploads/2020/12/GIACC.BROCHURE.ISO-37001.ENGLISH-1.pdf

Appendix section:

Another possible path to improving nutrition for school children in developing countries²

Malnutrition in developing countries remains a persistent challenge, especially for school children. While global solutions are crucial, the key to success might lie in adapting local resources and traditions. This article explores how a historical intervention in Japan, combined with a "think globally, act locally" approach, can offer valuable lessons for improving child nutrition programs in developing countries like Indonesia.

The Nori Intervention: A Model for Local Action

In the 1950s, Japan faced a serious childhood malnutrition problem. A key solution involved incorporating Nori, a readily available and affordable source of vitamins and minerals – seaweed – into school lunches. This simple, culturally relevant intervention significantly improved children's health.

Think Globally, Act Locally: Applying the Nori Lesson

The Nori story offers a powerful message for developing countries:

- **Identify Local Staples:** Focus on fortifying or incorporating nutrient-rich, locally available foods into school meals. These could be indigenous fruits, vegetables, or underutilized grains.
- **Culturally Relevant Solutions:** Programs should resonate with local traditions and preferences. This fosters acceptance and long-term sustainability.
- **Community Involvement:** Engage local farmers and communities in producing and supplying these nutritious ingredients for school meals. This strengthens local economies and fosters ownership.

² V. Christianto & F. Smarandache. *SMIJ* (2024). DOI: <https://doi.org/10.61356/SMIJ.2024.77101>, url: <https://sciencesforce.com/index.php/smij/article/view/230>

A Few Lessons from Venezuela: Introducing a New Model of Appropriate Farming and Appropriate Renewable Energy

Indonesia: A Case for Local Action

Indonesia, with its diverse agricultural landscape, presents a perfect example for applying the "think globally, act locally" approach. Here's how:

- **Nutrient-Rich Local Staples:** Indonesia boasts a wealth of nutrient-rich options like sweet potatoes (vitamin A), Moringa leaves (iron and calcium), and tempeh (protein). These can be incorporated into school meals.
- **Culturally-Sensitive Menus:** Indonesian cuisine often features rice and vegetables. School meals can build on this foundation by adding these locally sourced, fortified options.
- **Community Partnerships:** Partnering with local farmers to supply these ingredients can create a sustainable food system for school meals.
