Tackling Wicked Problems in Indonesia
A Bottom-Up Design Approach to Reducing Crime and Corruption

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Willie Smits of Indonesia and Friend
My Purpose

- Examine case of **Willie Smits, a social entrepreneur**, who launches a bottom-up change effort to tackle some wicked problems in Borneo.

- **Recreates lush rain forest and return of biodiversity**
  - 700 butterfly and insect species
  - 578 plant species
  - half million trees, 1,300 species on 1,000 hectares
  - safe haven for 2,000 orangutans, 700 reintroduced into the wild.
  - bird species up from 5 to 137
  - reptile species increased to 30 and primates to 9.

- **Produces changes in climate**
  - No more fires and flooding
  - Temperature dropped 3-5 degrees Celsius
  - Air humidity up by 10%
  - Cloud cover increased (after 3 years) by 11.5%
  - Rainfall increased by 25%
Our Purpose

- **Redesigns local communities and their economies to support the habitats and forests**
  - Land titles secured.
  - Community development: jobs, food, housing, training, education.
  - Democratization and community governance
  - New markets opened e.g. sugar palms

- **Produce second/third-order effects**
  - East Kalimantan was no longer the poorest district.
  - Crime reduction by 50%
Why Case is Important?

- Illustrates benefits of examining successful cases of crime/corruption reduction.

- Demonstrates the value of shifting the level of analysis from the top-down to bottom-up as an approach to reduce crime and corruption.

- Highlights the advantages of a Design Approach to Problem Solving to address “wicked problems” like crime and corruption from the bottom up.

- Identifies the importance of tracking second-order, indirect effects of change.
Two Generic Approaches to Fighting Crime and Corruption

- Top-down Approach
- Bottom-up Approach
Top-down Approach*

- Government-initiated policy reforms and goals led by officials and policy experts:
  - Focused on creating “infrastructure”:
    - **Laws** – imposition of harsh penalties and risks of detection
    - **Rules and Regulation**
    - **Law enforcement**—trained and equipped
    - **Courts**—honest, independent judiciary etc.
  - Supported by International Institutions e.g. World Bank, IMF

Indonesia’s Approach

- **Top-Down:**
  - Indonesia’s interventions are generally top-down, central government-initiated, internationally-funded with the **direct goal** of fighting crime and corruption.
  - Focus on infrastructure development
    - Establish the Corruption Eradication Commission directly under the President’s Office
    - Issuance of a new law and regulations with the aim of strengthening domestic legislation and the legal framework on anti-corruption
    - Train police and forest officials and the provision of equipment etc.
  - Led by officials and policy experts.
Issues of Top-Down Approach

- Results from top-down efforts have not been particularly successful:
  - Crost & Johnston, *Aid Under Fire: Development Projects and Civil Conflict*  
    [http://belfercenter.ksg.harvard.edu/publication/20605/aid_under_fire.html](http://belfercenter.ksg.harvard.edu/publication/20605/aid_under_fire.html)
Bottom-up Approach

- Bottom-up efforts growing:
  - Nicholls (Ed.). *Social Entrepreneurship: New Models of Sustainable Social Change.*
  - Projects emphasize broad participation of community residents
    - in decision-making
    - democratic leadership selection to local boards that manage project funds
    - transparency of information regarding project investments to help deter fraud.
Issues of Bottom-Up Approach

• Mansuri and Rao (2004) in their comprehensive review of CDD projects signaled out the possibility of so-called ‘benevolent capture’ as a key area for empirical inquiry.

• Abraham and Platteau (2004) found that capture can be reduced by diversified representation of elites to ensure a diversity of opinion to develop among them.

The Design Approach to Problem Solving

- Design School at Stanford
  http://dschool.stanford.edu/
  http://dschool.stanford.edu/use-our-methods/
  http://dschool.stanford.edu/social-entrepreneurship/
Design Principles

- Innovators, not innovations
Sweet Spot

- TECHNOLOGY (feasibility)
- BUSINESS (viability)
- HUMAN VALUES (usability, desirability)

DESIGN INNOVATION
Real-world projects
Radical Collaboration
Willie Smits and Design Principles

- **Change-Oriented Design**
  - rescue, rehabilitate, and release orangutans into the wild
  - recreate rainforests
  - develop community

- **Holistic Design**
  - life in harmony – interconnections of all systems (animals, people, planet)
Willie Smits and Design Principles

- **Integrative Design**
  - people, profit, technology

- **Collaborative Design**
  - community involvement and active participation
Willie Smits and Design Principles

- Leader Activated and Orchestrated Design
  - creative ideas (innovator and inventions)
  - creative funding
  - establishes organizations—foundations, partnerships, nonprofits, factories

- Research-reliant Not Research-constrained Design
  - constant tinkering, data collection, monitoring, evaluation.
Willie Smits and Design Principles

- **Embodied Design**
  - learning by doing, creating “recipes” to determine what grows where at what cost to optimize production for the available labor and land.

- **Action-Oriented Design**
  - relentless attention to process—lots of stories, advocacy, and a constant stream of information to remind people in a meaningful way what the problems are and how to address them.
  - detailed comparisons with competitors; creation of new markets, e.g. sugar palms.
Sugar Palm: Arenga Pinnata

- Waste-free system that flourishes best in a bio-diverse forest environment not in a monoculture

- Produces
  - premium organic sugar
  - bio-fuel (alcohol, ethanol)
  - food products

- Provides
  - jobs (five-to-20 times more labor intensive than harvesting oil from the oil palm). For optimum production, it must be tapped twice a day by tappers trained to slice a thin layer from the end of the stalk on which male flowers are growing. Smits says that the tapping process cannot be mechanized.

  - higher pay (workers earn an income that is twice the region's prevailing minimum)

- Protects atmosphere rather than adding to the earth’s growing carbon dioxide burden
Sugar Palm Tree and Energy

Production:
Energy equivalent of 82 Barrels Oil per hectare/year!

The Basic Principle:
Convert solar radiation energy into storable chemical energy
Bio-fuel Comparisons

- Smits says that his process can produce 19 tons (6,300 gallons/24,000 liters) of ethanol per hectare annually.

- Corn produces 3.3 tons (1,100 gallons/4,200 liters) per hectare, by most recent U.S. Department of Agriculture yield figures.

- Brazil's sugarcane is calculated to be 4.5 tons (1,500 gallons/5,700 liters) per hectare (EPA’s lifecycle analysis).
- **Tapergie's facility in Tomohon is world's first Arenga palm sugar factory.** It has 6,285 palm tappers as members of the cooperative, making the twice-daily journey into the village forests to collect juice to be brought back to the factory.

- Factory designed to **operate on sustainable energy**—geothermal heat (waste energy captured from the state energy company). Clean energy replaces practice of cutting thousands of trees to fuel fires to boil sap.

- **Biofuel** produced on-site are used to replace gasoline in motorcycles, small vehicles, small machines and generators, and is also used as cooking fuel in special burners. Once scaled up, biofuel could be transported for further refining for use in conventional vehicle engines elsewhere.

- **The Village Hub idea is the turnkey versions** of the Tomohon factory for remote areas on the 3,000 or so islands east of Sulawesi. These are areas where people typically live without electricity, fuel, communication, education, health services, or potable water.

- **Portable mini-factories**, running on local biomass and solar heating, could help villages to become economic centers providing jobs, producing drinking water, electricity, cooking fuel, compost and cattle feed, and enabling telephone and satellite-based broadband Internet access.

- **Community ownership**—communities would own 49 percent of the operations. Villagers would have a shared investment in protecting and cultivating the trees and the diversity of surrounding forest and thus establishing a virtuous cycle of protection.
Factory in a Box
Areas Suited to Sugar Palm Growth
Willie Smits, Design Principles and Wicked Problems

- Constant framing/reframing problem/s for the local context.
- Bringing community members into the problem solving.
- Devising creative financing to fund change projects.
- Building networks at the local level to support and sustain change and ensure implementation (networks of people, businesses, foundations, nonprofits).
- Systematic monitoring, measuring, and tinkering to establish what works and what doesn’t.
Conclusion

- Crime and corruption are the results of **poorly designed systems**. Need to take a systems perspective for long-term change.

- You don’t have to start redesign at the top. Great potential in **bottom-up change agentry and social entrepreneurs** are leading the way worldwide.

- **Design Approach** offers great advantages especially in taking into account local conditions and building community support to sustain the changes over time.

- Be sure to monitor **second-order effects** and outcomes of change interventions.

- **Remember, a one-size-fits-all** approach to redesign or to crime/corruption reduction unlikely to work.
Willie Smits of Borneo and Friend