

Abstract Book

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SUSTAINABLE DEVELOPMENT
SOLUTIONS NETWORK
A GLOBAL INITIATIVE FOR THE UNITED NATIONS

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**ARTHA GRAHA
PEDULI**



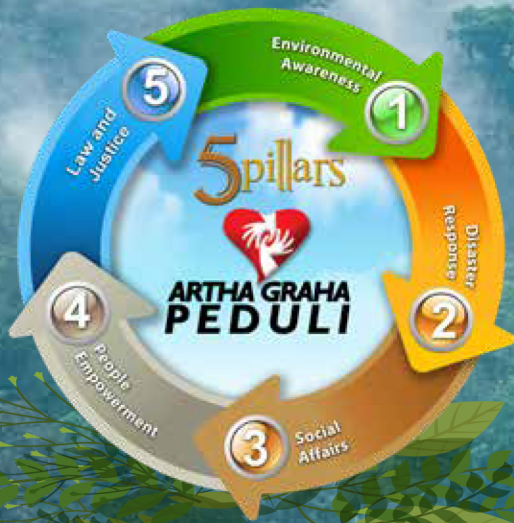
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ARTHA GRAHA PEDULI

SUPPORTING SUSTAINABLE DEVELOPMENT



The **ARTHA GRAHA PEDULI** Foundation (AGP) is a non-profit organization created by the ARTHA GRAHA NETWORK which focuses on 5 main pillars broadly encompassing sustainability and social growth initiatives.

Pillar One is to support environmental conservation of the natural ecosystem and thus, development of a sustainable infrastructure. Some successful examples of this initiative are: (1) conservation efforts at Tambling Wildlife Nature Conservation (TWNC) reserve, (2) Revitalizing Citarum river and Mangrove Forest, and (3) Sustainable Palm forest.

Pillar Two focuses on responding to natural disasters by minimizing the risk, quick response and post-disaster restoration. Pillar Three is focused on "Social Affairs" by providing food sustainability, education healthcare, and social welfare for the underprivileged and the elderly. Additionally, Pillar Four works to empower people through training, and supporting the development of SME's.

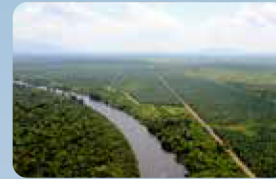
Finally, Pillar Five supports efforts to works with local and national governments to ensure that law and justice is upheld in the society.



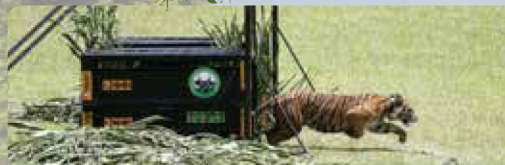
Citarum River



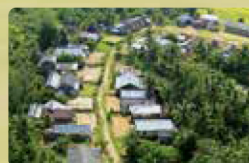
Palm Forest Conservation



Mangrove Forest



Tambling Wildlife Nature Conservation (TWNC) is a conservation area operated and managed by the ARTHA GRAHA PEDULI Foundation. The main objective for TWNC is to protect, restore and promote sustainable use of terrestrial and aquatic ecosystems, properly manage forests, combat desertification, strive to halt and reverse land degradation and minimize biodiversity loss.



Tambling Wildlife Nature Conservation

SUSTAINABLE DEVELOPMENT GOALS





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Ellen MacArthur Foundation, 2017, A New Textiles Economy: Redesigning Fashion's Future

Kircherr, J, Reike, D, & Hekkert, M, 2017, Conceptualizing the circular economy: An analysis of 114 definitions. Resources, Conservation and Recycling, vol. 127, pp.221-232.

Integrating the SDGs into core of corporate sustainability

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Abstract:

Companies can consider the SDGs either as a significant business opportunity or as one more reporting burden. If we want to ensure that the Global Goals are achieved, it is critical to have companies and their innovation power on board. It is hence critical to provide companies with a hands-on, pragmatic and effective approach to translate the SDGs into new business opportunities resulting in additional revenue streams. The SDGXCHANGE does just that. It has been developed and tested in close cooperation with half a dozen Swiss-based companies of different industries and size. In the addition of the SDG-focus, the strategy process builds on a number of key concepts:

- **Business Sustainability Typology:** The SDGXCHANGE aims at enabling organizations to embrace 'true business sustainability'. This is the most advanced form of business sustainability, according to the Business Sustainability Typology. The focus shifts from reducing the negative impact of business to making a positive impact in critical and relevant areas for society and the planet. Only true business sustainability holds the promise to overcome the big disconnect between issues our society is facing and business contributions.
- **Doughnut Economics:** SDGXCHANGE uses the Doughnut Economics concept as a playfully serious approach to framing today's societal challenge. The doughnut lies between social and planetary boundaries and indicates an environmentally safe and socially just space in which humanity can thrive. It sets a vision for an equitable and sustainable future, but is silent on the possible pathways for getting there. So the doughnut acts as a convening space for debating different pathways forward.
- **Gapframe:** The Gapframe is an easy-to-use data visualization tool designed to give practical support to everyone working towards a sustainable and safe future. It is an essential tool within the SDGXCHANGE GRIPS process, helping organizations to identify issues that are a threat or critical in countries or regions where the organization operates. Within the process, organizations learn how to turn these issues into concrete business opportunities.
- **Planetary Boundaries:** the planetary boundaries concept presents a set of nine planetary boundaries within which humanity can continue to develop and thrive for generations to come. SDGXCHANGE uses the concept as foundation, ensuring that identified business opportunities

stay within these boundaries.

The SDGXCHANGE methodology differentiates itself through the GRIPS approach, which addresses not only the knowledge dimension like most other methods, but also offers hands-on support and solutions in the activity's dimensions. While there are indeed a few other emerging tools that build on knowledge and data sources, the GRIPS approach is the only existing SDG-related methodology that also addresses and embraces the behavioral change dimension. Integrating this third dimension is critical to ensure a true transformation of any organization that seeks to embrace and embed the SDGs into their core activities. The GRIPS process consists of the following process steps: Getting started, Reframing, Ideating, Prototyping, and Sharing.

We shall present not only the methodology but also best practice examples from existing case studies of companies in different section.

Life Cycle Assessment (LCA) of the Hard Apple Cider Production System

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Abstract:

Improved accessibility and availability of fresh produce has allowed the general population to rely heavily on corporate agribusiness, which has forced small farms begin to seek other means of profitability. This trend is reflected within orchard management, where farmers are beginning to produce hard apple cider as a means to increase profit through product sales and agritourism. The increasing popularity of high-value artisan products as demonstrated by the craft brewing industry has allowed a path for cider to enter the craft beverage market. This business venture represents a potential method to improve inter-generational transition of land ownership and management by engaging new markets. While entering the cider market may be a step towards revitalizing private orchards, as with any industry growth, there is potential for increased pressure on the environment and natural resources. In order to evaluate agricultural and cider production methods that may have environmental impacts, life cycle assessment (LCA) can be used to identify opportunities for improvement in production systems. LCA will be applied to multiple management scenarios (such as organic and conventional growing techniques), fermentation and product storage techniques, packaging type, and final product distribution to assess areas of high and low impact. The cider's impact can be examined from cradle to grave. In the agricultural phase, nutrient exchange, irrigation, fertilizers, pesticides, herbicides, supplies and fuel are considered. In the cider production phase, cold storage, water and detergent/sanitization needs, pressing equipment and energy requirements, filtration, yeast, and preservative agents are considered. In the packaging and distribution phase, cleaning and sanitization needs, primary and secondary packaging, labels and marketing material, transport equipment and fuel requirements are considered. Within each of these phases, waste disposal must also be considered to fully quantify the environmental impact of cider production. The application of LCA will help to identify improvement opportunities within the cider production



Launched by UN Secretary-General Ban Ki-moon in August 2012, the Sustainable Development Solutions Network (SDSN) mobilizes scientific and technical expertise from academia, civil society, and the private sector in support of sustainable development problem solving at local, national, and global scales. We aim to accelerate joint learning and help to overcome the compartmentalization of technical and policy work by promoting integrated approaches to the interconnected economic, social, and environmental challenges confronting the world. The SDSN works closely with United Nations agencies, multilateral financing institutions, the private sector, and civil society. unsdsn.org



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