



Artificial Intelligence – a WaSH Emphasis

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Where A.I. came from? Where headed (short term)?

- Databases of text, some images
- Google Search (website programmers helped it w structures)
- Meetings (transcribe audio, voice recognit., summarize, actions e.g. OtterAI)
- Large Language Models (LLMs)
- Timesaving Summaries: Google Generative Search, Amazon reviews

- Artificial General Intelligence (AGI, more “human thinking” over time)
- Intelligent Robots – increasing sophistication (auto assy → ID cancers)
- Household: Rolling then Humanoid shapes – menial (vacuum, lawn mow) & dangerous tasks (ordinance) ... maybe Companionship?
- Law, Policy & Ethics – typically slower to respond



IT'S SO TINY —

You can now buy a 4-foot-tall humanoid robot for \$16K

No one is quite sure what you're supposed to do with the robot, but you can buy one.

RON AMADEO · 5/20/2024, 1:17 PM



Some AI Players – How to use

- AI Competitors: Gemini (Google), CoPilot (Microsoft), ChatGPT (OpenAI), many others
- ChatGPT – 3.5 (free), Dall-E, 4 (\$20/mo), 4plus, **4o** ... **5?**
 - 4o = Omni – multi-modal: text, voice, images, video, smartphone camera, fast enough for live conversation
 - Remembers “conversations” – can easily add to them
- WaSHAI – under development (50k docs, multi-language)
- How to use? *Think* how, try. Give basic info or situation - prompt it for general info, or a targeted response ... or creativity
- Vary your use (personal, work, health, WaSH) ... Practice ... Broaden, Focus ... push it to “do more” – build your skills interacting
- Watch for hallucination – bounce off experts (don’t rely on AI alone)

Personal Uses

- Plan a trip (to Norway) – sites & experiences (describe), routes, winter roads, EV charging stations/apps
- Relationships or Lifestyle:
 - Better exercises for flexibility, strength; when traveling? w/o gym?
 - What are lifestyle options: house options, combining stuff
 - Rough spots w/ stepdaughter – understand? improve relationship?
 - Limitations on QTIP & Living Trust (follow up w professional)
 - Trends in clothing, furniture, decor
- Finances:
 - Refine Investments - recommend long-term care insurance
 - DAF (donor advised fund) – what, how to, refine or improve
- Choose a sports car (cost, performance, depreciation, reviews)

Prepare WWS 16 Sustain-Sanit. Technologies - use AI

- Planning Committee decided on SFD framework
- Collect Team of experienced WaSH-RAG Rotarians
- Ask ChatGPT (4, then 4o):
 - Explain SFD (framework, resources)
 - How to organize the session
 - How to get more ideas & insight across in limited time
 - Specific technologies
 - Quiz ... probe ... tables ... web links & docs
 - Compose Image & Poem (that synthesizes a chat; bookmark)
 - Simple WaSH project where no knowledge (blank slate, Madagascar)
 - How to explain AI to audience



In a rural area of a developing country like kenya, compare for me the total cost for making an installing a toilet of each of the types we have discussed: e.g. VIP latrine, UDDT, composting, pour flush, etc. If you can, show the elements for each of those cost items and how you arrived at the total, for each one. Assume that ground preparation is already been done and that labor costs are the same per hour or day.

ChatGPT

The cost of making and installing different types of toilets in rural Kenya depends on various factors like materials, labor, and transportation. Here is a rough cost estimate for each type:

1. Ventilated Improved Pit (VIP) Latrine

- **Materials:** Bricks or concrete for the structure, wood or metal for framing, and a ventilation pipe.
- **Costs:**
 - Slab and construction materials: \$150 - \$250
 - Superstructure: \$200 - \$400
 - Ventilation pipe: \$50
 - Total: **\$400 - \$700**

2. Urine-Diverting Dry Toilet (UDDT)

- **Materials:** Urine-diverting toilet seat, storage chambers, and building materials for the superstructure.

• **Costs:**

- Toilet seat and accessories: \$100 - \$150
- Composting chambers and construction materials: \$300 - \$400
- Superstructure: \$200 - \$400
- Total: **\$600 - \$950**

4. Pour Flush Toilet

- **Materials:** Pour flush pan, plumbing, septic tank or pit, and materials for the superstructure.
- **Costs:**
 - Pour flush pan and plumbing: \$50 - \$100
 - Septic tank or pit and construction materials: \$200 - \$300
 - Superstructure: \$200 - \$400
 - Total: **\$450 - \$800**

5. Incinerating Toilet

- **Materials:** Incinerating toilet unit, ventilation system, and materials for installation.
- **Costs:**
 - Incinerating toilet unit: \$2,000 - \$4,000
 - Installation and ventilation: \$200 - \$400
 - Total: **\$2,200 - \$4,400**

To build significant new capacity for sanitation in rural or peri-urban areas, a collaborative approach involving government, private enterprises, NGOs, and local communities is crucial. This multi-stakeholder approach can effectively address the complex challenges of improving sanitation infrastructure and services. Here are several strategies and steps that these entities can take together to achieve this goal:

Government Role

1. Policy and Regulation:

- Develop and enforce clear sanitation policies and regulations to guide the implementation of sustainable sanitation solutions.
- Offer incentives for private sector participation, such as tax breaks or subsidies for developing local sanitation businesses.

2. Infrastructure Investment:

- Allocate funding for the development of sanitation infrastructure, including the construction of communal toilets, sewage treatment plants, and waste management facilities.
- Partner with private companies and NGOs to design and build these infrastructures under public-private partnership (PPP) models.

3. Capacity Building and Training:

- Invest in capacity building by providing training programs for local entrepreneurs and workers in the sanitation sector.
- Establish sanitation training centers in collaboration with NGOs and academic institutions to educate and train local populations in building and maintaining sanitation facilities.

4. Community Engagement and Education:

- Encourage community-led total sanitation (CLTS) approaches to empower local communities to manage their own sanitation needs effectively.

Private Enterprise and Business Role

1. Innovation and Development:

- Develop innovative, cost-effective sanitation solutions tailored to the specific needs of rural and peri-urban areas.
- Introduce scalable and sustainable product designs, such as composting toilets, biogas toilets, and low-water toilets.

2. Business Incubation:

- Create or support sanitation business incubators that help new entrepreneurs develop business plans, secure funding, and navigate regulatory environments.
- Offer mentorship and support to local businesses to scale up their operations sustainably.

3. Supply Chain Development:

- Work on developing a local supply chain that can support the sanitation sector by providing necessary materials and components locally.
- Engage in fair trade practices to ensure that local labor and materials are utilized efficiently and ethically.

4. Financial Services:

- Provide microfinance and credit facilities to help households afford the upfront costs of installing new sanitation systems.

2. Tax Incentives:

- **Purpose:** To decrease the operational costs for businesses engaged in providing sanitation services.
- **Example:** Tax credits or exemptions for income generated from sanitation services, or reduced import duties on sanitation-related technology.

3. Low-Interest Loans:

- **Purpose:** To provide affordable financing options for businesses to invest in necessary infrastructure.
- **Example:** Special loan programs with below-market interest rates for businesses developing innovative sanitation solutions.

4. Microfinance Support:

- **Purpose:** To assist small-scale entrepreneurs in rural areas to start sanitation businesses.
- **Example:** Facilitating access to microloans for individuals and small businesses to build or improve sanitation facilities.

Capacity Building Incentives

1. Training and Education Programs:

- **Purpose:** To improve the skills and knowledge of local entrepreneurs and workers in the sanitation sector.
- **Example:** Offering free or subsidized training programs on sanitation technologies, business management, and sustainable practices.

2. Technical Assistance:

Market Development Incentives

1. Public-Private Partnerships (PPPs):

- **Purpose:** To encourage collaboration between the government and private sector in delivering sanitation services.
- **Example:** Forming PPPs to build and operate sanitation facilities, where the government provides land and the private sector manages operations.

2. Procurement and Purchase Guarantees:

- **Purpose:** To provide a stable market for businesses involved in producing sanitation products.
- **Example:** Guaranteeing to purchase a certain volume of locally produced sanitation products like toilets, soaps, and disinfectants.

3. Market Access and Promotion:

- **Purpose:** To help businesses reach potential customers and enter new markets.
- **Example:** Organizing trade fairs and exhibitions where businesses can showcase their sanitation products and services.

Legal and Regulatory Incentives

1. Simplified Regulatory Processes:

- **Purpose:** To reduce bureaucratic barriers for businesses entering the sanitation sector.
- **Example:** Streamlining permits and approvals needed to start and operate sanitation businesses.

- School teachers and administrators.
- Local builders and plumbers involved in the construction of WASH facilities.
- Youth leaders and women's groups.

Training Modules

1. Module 1: Introduction to WASH

- Overview of WASH principles, health impacts of inadequate WASH, and the global and local context for the interventions.
- Duration: 2 days
- Topics Covered: Principles and components of WASH, health impacts of inadequate WASH, role of WASH in community development and disease prevention.

2. Module 2: Water Supply Systems

- Technical training on the construction, operation, and maintenance of water supply systems including boreholes and hand pumps.
- Duration: 3 days
- Topics Covered: Types of water supply systems, construction and installation of hand pumps and solar pumps, maintenance and troubleshooting of water systems.

3. Module 3: Sanitation Facilities

- Guidance on constructing and maintaining various types of sanitation facilities, including VIP latrines and composting toilets.

to conduct effective hygiene education in the community.

- Duration: 3 days
- Topics Covered: Key hygiene behaviors and their health impacts, planning and delivering effective hygiene education, using participatory methods for behavior change communication.

5. Module 5: Community Engagement and Project Management

- Techniques to engage the community in WASH projects and essentials of project management and sustainability.
- Duration: 3 days
- Topics Covered: Community mobilization and participatory approaches, project planning, monitoring, and evaluation, sustainability and scaling up of WASH interventions.

▲ Training Logistics and Evaluation

Logistics The training sessions will be held at the community center over a period of 3 weeks. Each module includes interactive sessions, practical demonstrations, and field visits to ensure comprehensive learning. Participants will receive training materials, and lunch will be provided each day.

Evaluation Participants will be evaluated through pre- and post-tests, practical assessments, and group presentations at the end of each module. Feedback will be collected to improve future training programs.

Download the Comprehensive Training Plan for the WASH Project

This document is designed to provide a clear structure for training activities, ensuring that participants are well-prepared to contribute to the success of the WASH project in their village.



Be specific about the logic framework, and theory of change - what's the theory, how will things be caused, what are the inputs, outputs, intermediate outcomes and long-term impact?

ChatGPT

I have created a detailed document outlining the logic framework and theory of change for the WASH project in Madagascar. Here is an overview of the contents included in the document:

Logic Framework and Theory of Change for WASH Project

Theory of Change

The theory of change for this WASH project is based on the premise that improving access to safe water, sanitation, and hygiene (WASH) services will lead to better health outcomes, enhanced quality of life, and increased economic opportunities for the community. By providing comprehensive WASH services and building local capacity, the project aims to create sustainable change that will reduce waterborne diseases, improve school attendance, and empower local communities to maintain and expand WASH infrastructure.

Logic Framework

Inputs

1. **Financial Resources:** \$200,000 for the entire project.
2. **Human Resources:** Project team, local health workers, hygiene promoters, builders, and trainers.
3. **Materials:** Construction materials for water supply systems and sanitation facilities, hygiene kits, training materials.
4. **Technical Assistance:** Expertise in WASH technology, project

1. Construction of 5 boreholes and installation of hand pumps and solar pumps.
2. Construction of 140 VIP latrines and composting toilets.
3. Distribution of 200 hygiene kits to households.
4. Training of 50 local health workers, hygiene promoters, and community leaders.
5. Establishment of a Village WASH Committee.

Intermediate Outcomes

1. Increased access to safe drinking water for all households in the village.
2. Increased use of improved sanitation facilities, reducing open defecation.
3. Improved hygiene practices, including regular handwashing and safe water storage.
4. Enhanced local capacity to manage and maintain WASH infrastructure.

Long-Term Impact

1. Reduction in waterborne diseases and related health issues.
2. Improved school attendance and academic performance due to better health.
3. Increased economic opportunities through improved health and reduced healthcare costs.
4. Empowered and self-sustaining community with the ability to expand and maintain WASH services.

Detailed Description of Theory of Change

The project starts with the provision of essential inputs, including financial resources, human resources, materials, and technical assistance. These inputs are used to achieve specific outputs, such as the construction of water supply systems and sanitation facilities, the distribution of hygiene kits, and the training of local stakeholders.

The immediate result of these outputs is the achievement of intermediate outcomes, which include increased access to safe drinking water, increased use of improved sanitation facilities, improved hygiene practices, and enhanced

self-sustaining community. The project's success relies on active community participation, ongoing capacity building, and continuous monitoring and evaluation to ensure sustainable progress.

Overall, the theory of change highlights the causal relationships between inputs, outputs, intermediate outcomes, and long-term impacts, providing a clear roadmap for achieving the project's goals.

You can download the detailed logic framework and theory of change using the link below:

[Download the Logic Framework and Theory of Change for the WASH Project](#)

This document is designed to provide a comprehensive view of how the project will be implemented, ensuring that the audience can easily understand the objectives, strategies, and expected outcomes.



Provide [me](#) a list of NGOs that work in that [area](#), and are of good reputation and reliability (or at least seem so). Provide [me](#) a list of government agencies to involve in such a village [WaSH](#) project. Put these in a single Word doc.

ChatGPT

I have compiled a list of reputable NGOs and relevant government agencies that are involved in WASH projects in Madagascar. Here are the details:

NGOs Working in Madagascar

1. **WaterAid**: An international NGO focused on improving access to safe water, sanitation, and hygiene in developing countries.

term development solutions, including WASH programs.

5. **SEED Madagascar**: Focuses on sustainable development projects in Madagascar, including WASH, education, and environmental conservation.
6. **UNICEF**: The United Nations agency that works to improve the health and well-being of children, including water, sanitation, and hygiene programs.
7. **Action Against Hunger**: An international humanitarian organization that combats hunger and provides clean water and sanitation solutions.
8. **World Vision**: A Christian humanitarian organization that addresses the root causes of poverty and injustice, including WASH initiatives.

Government Agencies in Madagascar

1. **Ministry of Water, Sanitation, and Hygiene (Ministère de l'Eau, de l'Assainissement et de l'Hygiène)**: The primary government body responsible for water and sanitation policies.
2. **Ministry of Public Health (Ministère de la Santé Publique)**: Oversees health programs and initiatives, including those related to sanitation and hygiene.
3. **Ministry of Environment and Sustainable Development (Ministère de l'Environnement et du Développement Durable)**: Focuses on environmental protection and sustainable development, including water resources management.
4. **National Office for Water and Sanitation (Office National de l'Eau et de l'Assainissement - ONEA)**: Responsible for the implementation of water and sanitation projects.
5. **Regional and Local Government Authorities**: Engage with regional and local officials to ensure alignment with local development plans and policies.
6. **National Institute of Public Health (Institut National de Santé Publique)**: Provides research and support for public health initiatives, including WASH-related studies and programs.

Will you please draft a Rotary global grant application, that includes all the above.

ChatGPT

I have drafted a Rotary Global Grant application for the WASH project in Madagascar, incorporating all the relevant details and stakeholders. Here is an overview of the content included in the document:

Rotary Global Grant Application

Project Title

Comprehensive WASH Project for a Village in Madagascar

Project Summary

This project aims to improve access to safe water, sanitation, and hygiene (WASH) services in a village in Madagascar. The village has 200 households, 2 primary schools, and currently lacks adequate WASH infrastructure. Only 30% of [the households](#) have toilets, and there is no safe water source. This project will implement comprehensive WASH solutions, including the construction of water supply systems, sanitation facilities, hygiene promotion, and capacity building to ensure sustainability.

Areas of Focus

This project aligns with Rotary's focus on Water, Sanitation, and Hygiene (WASH) by addressing the critical needs for clean water access, improved sanitation facilities, and hygiene education.

Project Location

Village in a valley, Madagascar

Host and International Sponsor

Host Sponsor: Local Rotary Club The [local](#) Rotary Club will be responsible for the stewardship and supervision of the project, ensuring proper coordination and implementation of all activities.

International Sponsor: Partner Rotary Club [The](#) Partner Rotary Club will provide additional support, including fundraising, technical assistance, and oversight to ensure project success.

Cooperating Organizations

The following organizations will cooperate in the project implementation:

1. SEED Madagascar: Providing technical assistance and capacity building.
2. WaterAid Madagascar: Supporting the design and construction of water supply systems.
3. [Helvetas](#) Madagascar: Assisting with the construction of sanitation facilities and hygiene promotion.
4. CARE International: Conducting training and community mobilization activities.
5. UNICEF Madagascar: Offering support for hygiene education and monitoring.
6. Madagascar National Office for Water and Sanitation (ONEA): Implementing water and sanitation projects in coordination with government policies.

Community Needs Assessment

A thorough needs assessment was conducted, involving community surveys, focus group discussions, and consultations with local leaders and stakeholders. The assessment revealed a critical need for improved WASH infrastructure and services. Only 30% of households have access to toilets, and there is no safe water source. Open defecation is common, leading to significant health risks, especially during the 5-month rainy season. The community expressed strong support for the project and a willingness to participate in its implementation.

Project Description

The project will implement the following components:

1. **Water Supply System:** Construct 5 boreholes with hand pumps and solar-powered pumps to provide safe drinking water to all households.
2. **Sanitation Facilities:** Build 140 VIP latrines and composting toilets for

AI Creativity – an image of Sanitation in E.Africa

Prompt (after long conversation): Make a comprehensive image of this Village. The Sun is setting over distant mountains with scattered clouds in the sky. In the center is a recently constructed UDDT toilet, with a middle-aged woman sitting and using it, door slightly ajar as 3 other women or girls stand around admiring and smiling - one with her hand over her mouth surprised. On the right are the 3 Artisans with tools who made it, proud as can be. On the right are 3 children mixed genders making mud pies. On the left are 4 children running, one has a stick and a tire. Nearby is an Afridev hand water pump with 4 women filling their yellow Jerry cans. A few birds fly overhead. *(Note: features requested are missing, or poorly illustrated)*



AI Creativity – image of Human Waste, Nature's Cycle

Prompt (after long conversation): Make a comprehensive image showing human urine being sprinkled as fertilizer and plants growing bigger. Show human feces drying or decomposing and then being turned into a soil amendment. Show people happy about the increased size and quality of their produce. Show families enjoying the nutritious food. (Note: features requested are missing, or poorly illustrated)



AI Creativity – a Poem on Sustainable Sanitation

Prompt: Compose a poem that touches the heart about how our urine (pee) and feces (shit, poop) can be a source of energy, they help plants grow be healthy and provide more plentiful food for people who are starving. *(a few words changed by SM)*

In Nature's Cycle, Beauty Grows

From humble acts, a circle spins,
Where life renews and fresh begins,
Our urine flows, our waste descends,
To fertile soil, where magic blends.

In golden drops, our essence falls,
A gift to earth, as nature calls,
It nourishes the roots below,
And helps the tender seedlings grow.

Our feces, once seen with disdain,
Transforms in compost, not in vain,
It breaks down slow, with time and care,
Becomes the earth, a bounty rare.

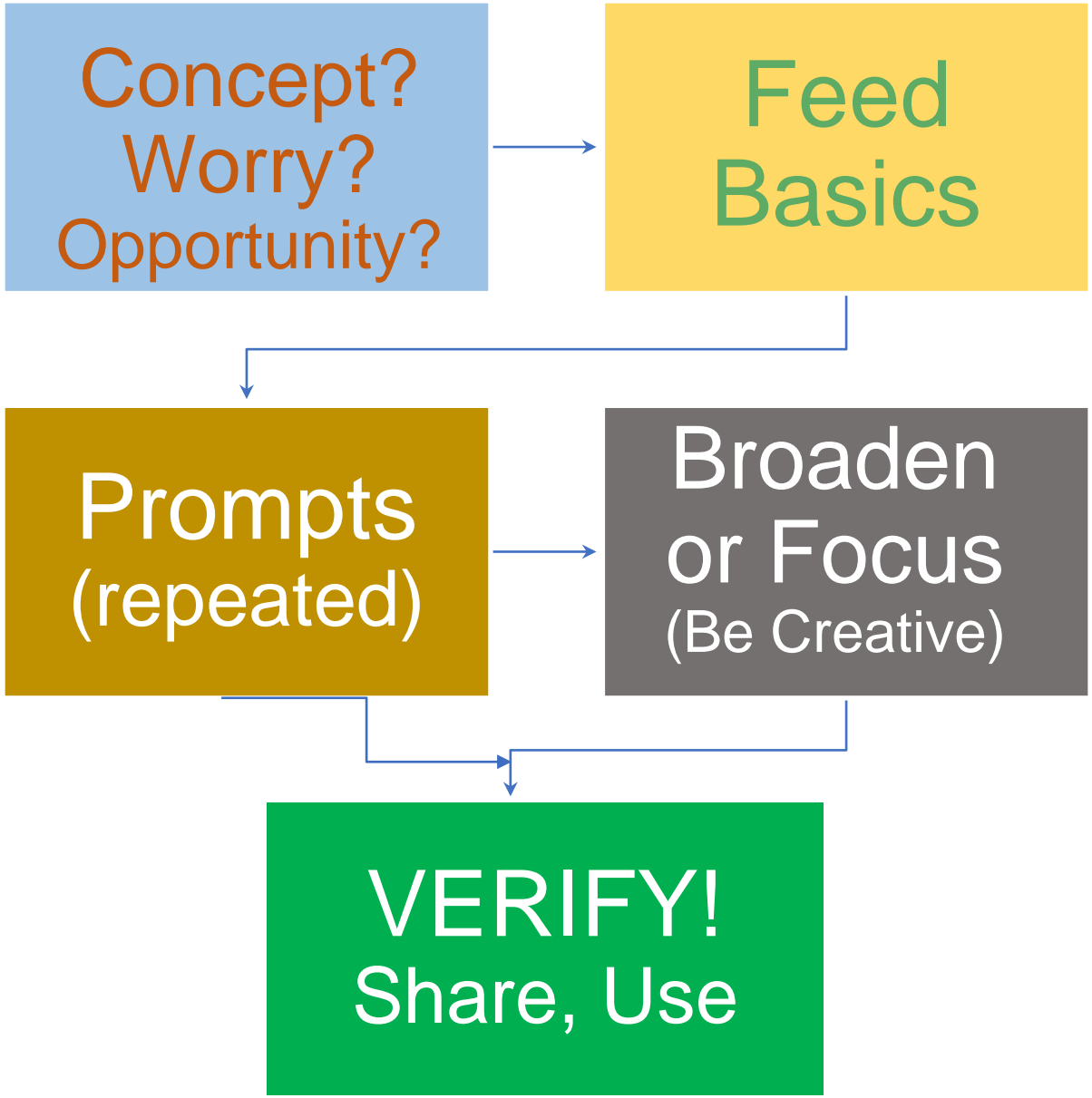
With every plant that drinks this gift,
Its leaves grow strong, its branches lift,
The fruits they bear, abundant, sweet,
Are gifts for those with none to eat.

In fields of green, where hunger fades,
In healthy crops, our hope pervades,
The starving souls find life anew,
In food that's rich, and skies so blue.

So let us cherish this small deed,
To turn our waste to what we need,
For in this cycle, love is shown,
And through it, we are truly grown.

From waste to wealth, the story's told,
In nature's hands, pure alchemy unfolds,
Our humble gifts, in soil embraced,
Bring forth a world, with hunger erased

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*You? Use A.I.?
... Just Do It!*

*GIGGO?
MIGO – Missing Info, General Output.*