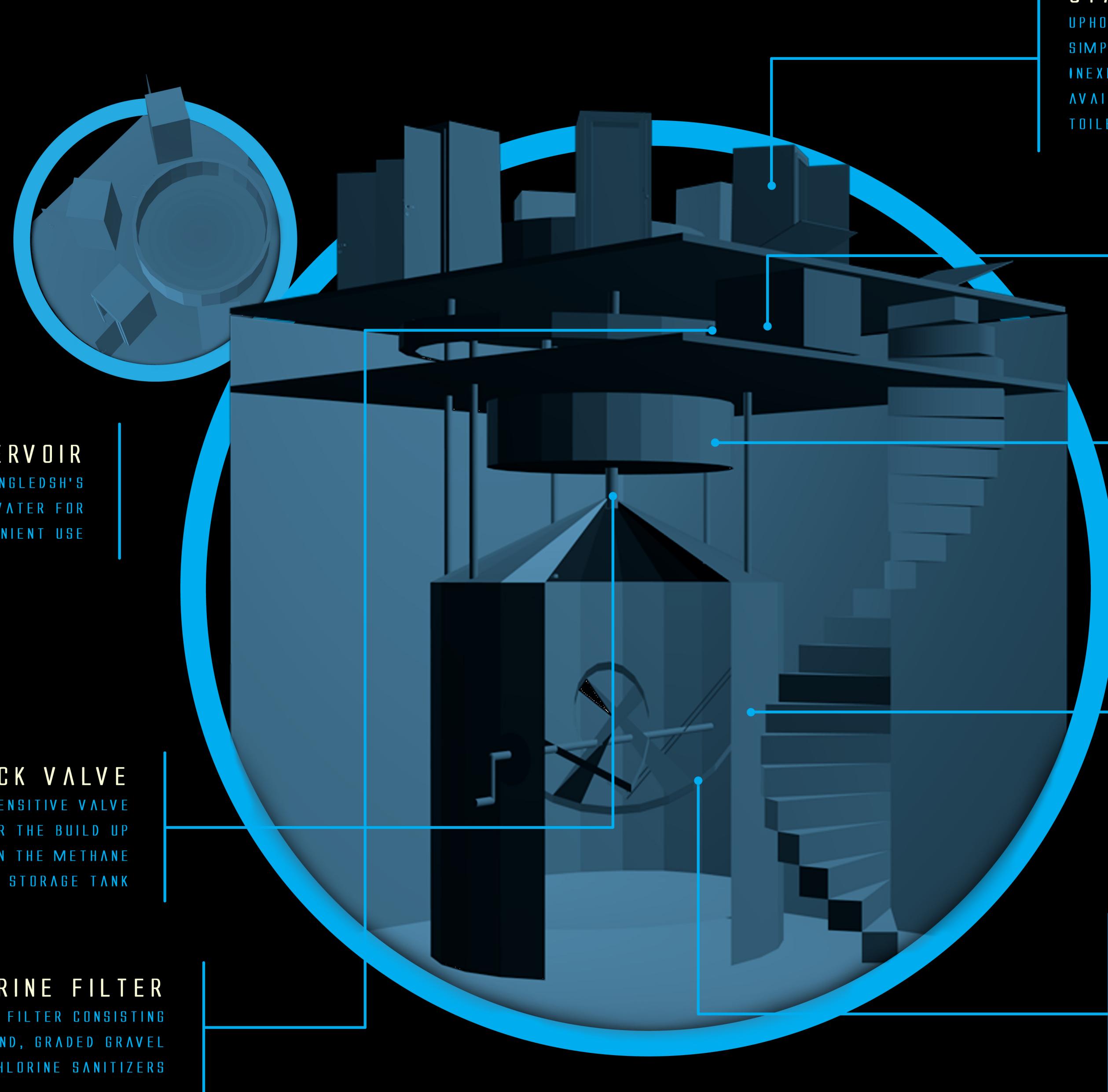


# REINVENTING THE TOILET

GLOBAL IDEAS INSTITUTE



**WATER RESERVOIR**  
COLLECTS AND STORES BANGLADESH'S PLENTIFUL RAINFALL WATER FOR CONVENIENT USE

**BALL CHECK VALVE**  
ONE-WAY PRESSURE SENSITIVE VALVE THAT ALLOWS FOR THE BUILD UP OF PRESSURE IN THE METHANE STORAGE TANK

**URINE FILTER**  
PIPE EQUIPPED WITH A FILTER CONSISTING OF LAYERS OF SAND, GRADED GRAVEL AND CHLORINE SANITIZERS

**STALLS**  
UPHOLDS PRIVACY DURING VACANCY. SIMPLE BOX DESIGN CREATED FROM INEXPENSIVE MATERIAL ALREADY AVAILABLE IN BANGLADESH. PROTECTS TOILET FROM WEATHER DETERIORATION.

**FILTRATE TANK**  
STORES FILTRATE USED TO LIBERATE THE INNER AND OUTER COMPLEX FROM THE BUILD-UP OF UNWANTED RESIDUE.

**METHANE GAS TANK**  
STORES PRESSURIZED METHANE GAS PRODUCED AS A BY-PRODUCT FROM THE DECOMPOSITION OF FECAL MATTER.

**DECOMPOSITION TANK**  
STORES FECAL MATTER IN SUSTAINED DECOMPOSITION THROUGH THE USE OF BACTERIA AS CATALYSTS. PRODUCTS OF DECOMPOSITION INCLUDE METHANE GAS AND FERTILIZER. THE BASE OF THE TANK IS COMPOSED OF PERVIOUS CONCRETE WHICH ACCELERATES DECOMPOSITION THROUGH WATER EXPULSION.

**STIRRING ROD**  
COMPONENT ACCELERATES THE DECOMPOSITION BY BLENDING FECAL MATTER TO INCREASE THE SURFACE AREA EXPOSED TO OXYGEN AND ALLOWS FOR RECENT FECAL MATTER TO RECEIVE DEHYDRATION FROM THE PERVIOUS BASE.

**VALUE PROPOSITION**  
THE VALUES THIS DESIGN OFFERS TO THE CUSTOMER INCLUDE METHANE GAS (STORED IN SMALL TANKS) WHICH CAN BE USED FOR COOKING AND HEATING PURPOSES. ALSO, FILTERED WATER CAN BE DIVERTED FOR USE IN IRRIGATION. ANY FERTILIZER PRODUCED FROM DECOMPOSITION CAN BE USED IN FARM FIELDS. THE DESIGN GENERALLY OFFERS A MUCH MORE SANITARY LIFE STYLE.

**FEASIBILITY**  
WHERE WILL THE FUNDING COME FROM:  
1. CORPORATE SOCIAL RESPONSIBILITY  
2. UNITED NATIONS  
3. BILL AND MELINDA GATES FOUNDATION  
4. ADVERTISEMENTS CAN BE PLACED ON THE SIDES OF BATHROOM STALLS FOR A GIVEN PERIOD OF TIME.  
5. COULD PROPOSE TO AMERICAN STANDARDS TO PRODUCE PARTS, SO BECOME A MULTINATIONAL COMPANY (UNDER A DIFFERENT NAME)

FOR THE FUNDING FOR START UP OF EACH TOILET, THERE WOULD NEED TO BE AT FIRST, PARTIAL FUNDING USED FROM ABOVE SOURCES TO BUILD INDIVIDUAL TOILETS FOR CERTAIN VILLAGE HEADS. ONCE FEEDBACK HAS BEEN GIVEN AND APPLIED TO IMPROVE THE ORIGINAL DESIGN, IT WILL BE IMPLEMENTED ON A LARGER SCALE. FOR LARGE SCALE USE WE HAVE DECIDED THAT WE WILL USE THE GRAM VIKAS (AN NGO IN INDIA WHICH HELPS VILLAGES BUILD AND MAINTAIN A CLEAN WATER SUPPLY) METHOD. USING THIS METHOD, WE WOULD HAVE TO ASK EACH MEMBER OF THE VILLAGE TO PAY A ONE-TIME REASONABLE START UP FEE. THIS FEE WILL GO TOWARDS THE INITIAL CONSTRUCTION OF THE TOILET. THEN THE ENTREPRENEUR TRAINED TO RUN THE BUSINESS WILL USE THE MONEY ACQUIRED FROM THE SELLING OF THE THREE BY-PRODUCTS TO MAINTAIN THE BUSINESS. THIS WAY, THE TOILET WILL NOT BE TAKEN FOR GRANTED, WILL BE IMPLEMENTED PROPERLY, USED MORE FREQUENTLY, AND THERE WILL BE LESS VANDALISM (COMPLETELY ANNULS THE PROBLEM OF PEOPLE CLOGGING UP THE TOILET).

**SUPPLY**  
THE FUNDING WILL BE USED TO BUILD A MANUFACTURING COMPANY IN BANGLADESH (WHICH SIMILAR TO COKE'S BUSINESS PLAN) WHO WILL MAKE AND INSTALL TOILETS AND DISTRIBUTE REPAIR PARTS FOR TOILETS TO NEARBY VILLAGES WHERE LOCAL ENTREPRENEURS WILL MAINTAIN AND RUN THE TOILET AS A BUSINESS. THE REASON WE ARE DOING THIS IS THAT THROUGH THIS METHOD IT WILL INCREASE THEIR ECONOMY, GDP, AND EMPLOYMENT.

THE INITIAL FUNDING WILL COVER THE INITIAL COSTS OF STARTING UP A MANUFACTURING COMPANY. THE MANUFACTURING WILL SERVE AS LIAISON BETWEEN THE VILLAGE ENTREPRENEURS AND THE MANUFACTURING COMPANY. THE VILLAGE ENTREPRENEURS WILL ALSO HELP IN THE CONSTRUCTION OF THE TOILET SO AS TO KNOW HOW THE PARTS CONNECT AND BE ABLE TO TROUBLESHOOT DURING THE MAINTENANCE.

**MAINTAINANCE**  
AN INDIVIDUAL IN THE VILLAGE WILL BE EDUCATED TO MAINTAIN THE PROJECT. THE EDUCATION WILL CONSIST OF MARKETING SKILLS SUCH AS ALLOCATION OF FINANCIAL RESOURCES TO PROPERLY MANAGE REPAIRS, RENOVATIONS AND TROPICAL BLASTERS. THE INDIVIDUAL WILL ALSO BE GIVEN INSIGHTS ON TO THE INNER WORKINGS OF THE TOILET, THE PROCESS BY WHICH TRANSPORTATION OF PARTS AND SUPPLIES ARE BROUGHT IN FROM THE PORTS, KNOWLEDGE OF INSTALLATION PROCEDURES FOR COMMONLY REPLACED PARTS, AND MOUNTING OF METHANE GAS TANKS. THE INDIVIDUAL WILL ALSO BE EXPECTED TO GOVERN THE FAIR USE OF THE TOILET, INSURE A FINANCIAL PROFIT BY SELLING METHANE GAS AND FERTILIZER KEEP EMPLOYEES THAT WILL WORK ON THE REMOVAL OF FERTILIZER, CLEANING OF TANK, REPAIRS, UNBLOCKING, FILLING AND REFILLING OF METHANE GAS TANKS AND OTHER JANITORIAL SERVICES.

## TECHNOLOGY

THE TECHNOLOGICAL DESIGN OF OUR PROJECT WAS KEPT AS SIMPLE YET AS SANITARY AS POSSIBLE. THE ESSENTIAL IDEA USED IS THAT ADOPTED FROM THE EXISTENT PIT TOILETS WHICH ARE WIDELY ACCEPTED IN THE GLOBAL SOUTH. HOWEVER, WE HAVE MADE MODIFICATIONS TO MAKE THE SYSTEM BETTER. OUR DESIGN RESULTS IN THE FOLLOWING BI-PRODUCTS:

- 1. FILTERED WATER (TOILET CLEANING PURPOSES)
- 2. FERTILIZER (FARMING)
- 3. METHANE GAS (MULTI-PURPOSE)

ALL THESE RESOURCES SET IT APART FROM THE TRADITIONAL PIT TOILET. ANOTHER ADDITION WAS THAT OF A RESERVOIR IN THE MIDDLE OF THE ARCHITECTURE SO THAT IT COLLECTS RAINWATER.

THE OTHER MODIFICATION TO THE PIT TOILET DESIGN WAS THAT INSTEAD OF ONE HOLE FOR WASTE MATERIAL, TWO HOLES WERE INCORPORATED. IN THE FIRST HOLE, THE URINE IS TRANSPORTED TO THE FILTER TANK WHILE IN THE SECOND HOLE THE FECAL WASTE IS DUMPED DOWN VERTICALLY INTO THE COMPOSTING TANK.

THE COMPOSTING TANK RESULTS IN THE DECOMPOSITION OF THE FECAL MATTER AS WELL AS THE DEHYDRATION. ONCE THAT IS COMPLETE, A FINAL DRY FERTILIZER IS FORMED WHICH CAN BE USED BY THE FARMERS.

METHANE GAS IS PRODUCED DUE TO THE DECOMPOSITION OF THE FECAL MATTER. THE GAS IS COLLECTED IN A TANK DIRECTLY ABOVE THE COMPOSTING TANK. ONCE THE PRESSURE REACHES AN OPTIMUM VALUE, THE METHANE GAS IS RELEASED AND PROPANE TANKS ARE FILLED UP ON GROUND LEVEL.

## ADOPTION AND IMPLEMENTATION

NON-GOVERNMENTAL ORGANIZATIONS WILL BE MAINLY RESPONSIBLE FOR THE IMPLEMENTATION AND DISTRIBUTION OF THE TOILET COMPLEXES IN THE DESIRED AREAS. THEY WILL ALSO AID THE RURAL OPERATORS IN INITIATING AND MANAGING THE BUSINESS OF THE TOILETS. OVERLOOKING MAJOR OPERATIONS AS WELL AS MAKING THE MAIN FINANCIAL DECISIONS BASED ON REAL TIME DATA WILL BE DONE BY THE BILL AND MELINDA GATES FOUNDATION. THE GATES FOUNDATION WILL ALSO MAKE THE DECISIONS REGARDING THE EXTENSIVE DISTRIBUTION OF THE PROJECT. THE RURAL NON-POLITICAL LEADERS WILL MAKE THE DECISIONS IN THE SMALLER SCALE ABOUT CONCERN'S REGARDING THE TOILET (MAINTAINABILITY, FINANCE) AND COOPERATE WITH THE NON-GOVERNMENTAL ORGANIZATIONS ON IMPLEMENTATION PLANS.

**METHODS:**  
PROMOTION: CELEBRITIES WILL PROMOTE HEALTHY LIFESTYLES, GOOD HYGIENE AND SANITATION FOR EXCRETING WASTES. POSSIBLE CELEBRITIES THAT COULD ADVERTISE INCLUDE AMITABH BACHCHAN AND RIMI VAIDYA (INVOLVED WITH HABITAT FOR HUMANITY). THIS IS BECAUSE THEY ARE VERY RESPECTED AND HAVE ALSO BEEN INVOLVED WITH OTHER OUTREACH PROGRAMS IN THE PAST.

EDUCATION: THE NGOs WILL EDUCATE THE MOTHERS/WOMEN IN THE VILLAGES FOCUSING ON THE CONSEQUENCES OF NOT USING TOILETS INSTEAD OF THE BENEFITS OF USING IT (LOSS AVERSION). THIS METHOD WILL ALLOW THE VILLAGERS TO UNDERSTAND THE PURPOSE OF THIS PROJECT (FAMILIES HAVE STRONG BONDS). IN ADDITION, THE EDUCATION CAN EXPLAIN THE HEALTH ISSUES THAT THEY ARE FACING DUE TO POOR SANITATION SUCH AS DIARRHEA, ARSENICOSIS, CHOLERA AND TRACHOMA. TARGETING WOMEN OF AGES 20-30 BECAUSE PSYCHOLOGICAL STUDIES SHOW THAT THEY ARE MOST OPEN TO CHANGE. IN ORDER TO ACHIEVE THIS GOAL, FREE CLASSES FOR WOMEN WILL BE SET UP AT AN APPROPRIATE TIME AND PLACE.

INSTALLATION: THE TOILET COMPLEX WILL BE SITUATED IN AN ACCESSIBLE PLACE SUCH THAT IT IS BETWEEN THE MARKET AND THE MAIN RESIDENTIAL AREA. THIS WILL ELIMINATE THE INCONVENIENCE OF TRAVELING LONG DISTANCES AND THE EMBARRASSMENT THAT MAY BE EXPERIENCED BY THE USERS DUE TO OTHERS' ACKNOWLEDGEMENT OF THEIR UPGRADED TOILET USE.

INITIATION: A SINGLE SAMPLE TOILET WILL BE GIVEN TO A TRUSTED, NON-POLITICAL LEADER OR FIGURE IN THE VILLAGE TO BE UTILIZED WITH NO COST FOR A PERIOD OF THREE MONTHS. DURING THIS TIME, HE WILL PROMOTE AND SUPERVISE THE UTILIZATION OF THE NEW TOILET. THE PURPOSE OF THE

FREE TRIAL METHOD IS TO FAMILIARIZE THE VILLAGERS WITH THE BENEFITS AND COMFORT OF THE RELIABLE SANITARY TOILETS. THE SAME METHOD WAS SUCCESSFULLY USED IN THE PROMOTION OF THE BLACKBERRY PHONES.

IN THE MODEL VILLAGE, BASED ON THE VILLAGERS' RESPONSE TO THE NEW APPROACH IN EXCRETING WASTE, A REPORT WILL BE CONDUCTED AND SENT TO THE NGOs AND THE GATES FOUNDATION. THIS WILL ALLOW FURTHER IMPROVEMENT OF THE DESIGN BEFORE THE COMMENCEMENT OF THE LARGE-SCALE PRODUCTION AND IMPLEMENTATION OF THE PROJECT. THOROUGH REPORTS WITH REAL TIME DATA WILL BE REGULARLY SENT TO THE DECISION MAKERS FOR FURTHER IMPROVEMENTS. THIS APPROACH CREATES AN EFFECTIVE FEED-BACK SYSTEM THAT HAS BEEN SUCCESSFULLY USED BY COCA-COLA IN ORDER TO STAY POPULAR IN DEVELOPING COUNTRIES. AFTER THE VILLAGERS HAVE BEEN FAMILIARIZED WITH THE NEW TOILETS, TWO TOILET COMPLEXES WILL BE CONSTRUCTED PER VILLAGE AND THE VILLAGERS WILL PAY A ONE-TIME MANDATORY FEE OF 1000 BANGLADESHI TAKA PER FAMILY BEFORE UTILIZATION. PROMOTION VIA WORD-OF-MOUTH: ACCORDING TO AN ARTICLE FROM THE FINANCIAL TIMES, USING SANITIZED TOILETS IN BANGLADESH IS ALMOST EQUIVALENT TO HAVING A PHONE. IN ADDITION, THE CULTURE IN MANY DEVELOPING COUNTRIES SHOWS THAT THERE IS A SENSE OF COMPETITIVENESS BETWEEN NEIGHBORING VILLAGES THAT IS DRIVEN BY WORD-OF-MOUTH. THE SATISFIED USERS WILL START PROMOTING THE NEW SANITARY TOILETS THROUGH WORD-OF-MOUTH TO THE SURROUNDING VILLAGES, ALLOWING FOR AN INCREASING GROWTH OF ITS UTILIZATION.