

# IUNS 21<sup>st</sup> ICN

## International Congress of Nutrition

### “From Sciences to Nutrition Security”



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**Fase 20**  
Fase 20 Argentina  
Calle Arceles 943, Piso 2 departamentos 7 B7B7BQ  
1043 Buenos Aires, Capital Federal (Argentina)  
www.fase20.com - info@fase20.com

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# Conflict of Interest Disclosure

I have no conflict of interest to report in relation to  
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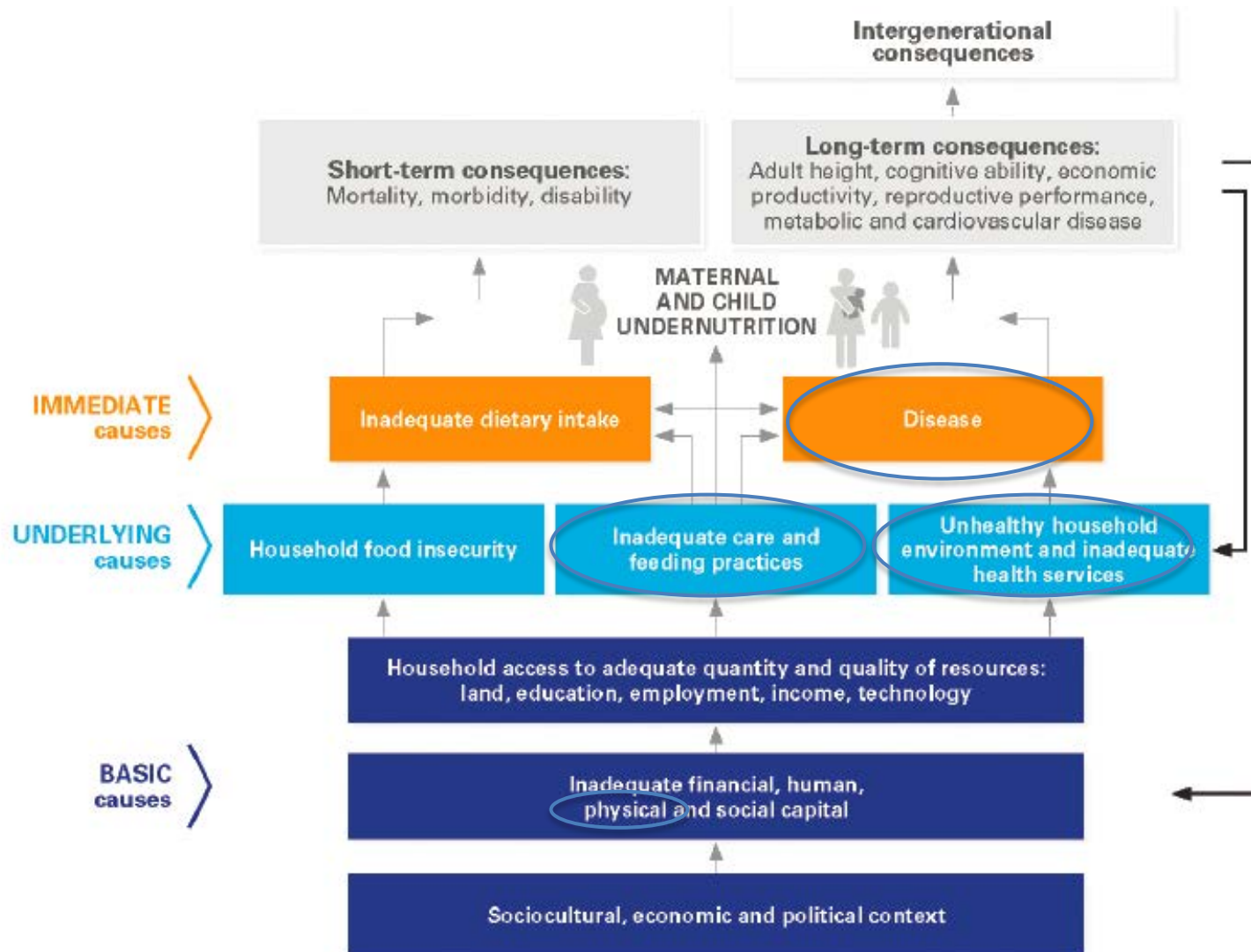
# WHY WASH IS CRUCIAL TO NUTRITION PROGRAMS

LESSONS LEARNED FROM MULTISECTORAL APPROACHES

Buenos Aires, ICN | 15 October 2017

Jennifer Nielsen, PhD Senior Nutrition Advisor

# UNICEF CONCEPTUAL FRAMEWORK - DETERMINANTS OF CHILD UNDERNUTRITION



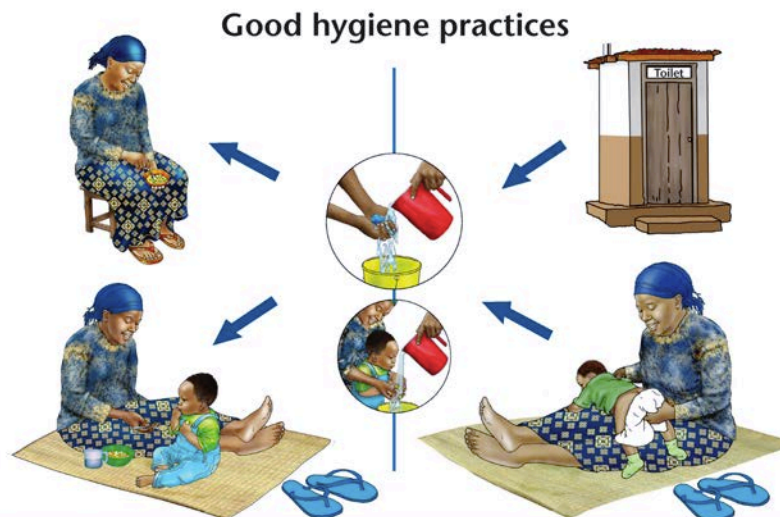
# WASH & CHILD UNDERNUTRITION

- **Inadequate access to clean water and unsafe sanitation and hygiene practices (WASH) undermine nutrition by**
  - Causing diarrhea and vicious cycle of reduced absorption and reduced appetite
  - Increasing exposure to parasite infections also reducing absorption and increasing nutrient losses (intestinal bleeding)
  - Leading to environmental enteric dysfunction (EED), a chronic condition of the gut caused by constant fecal-oral contamination, further reducing nutrient absorption and increasing permeability to infectious agents (Humphrey)
  - Fighting infection diverts nutrients from bodily functions and growth
- **Growth faltering and anemia peak as infants begin eating and crawling**
- **In sum, infection undermines potential impact of improved feeding practices**
- **Indeed, nutrition-specific interventions at scale can reduce stunting by only 20% (Bhutta 2013)**



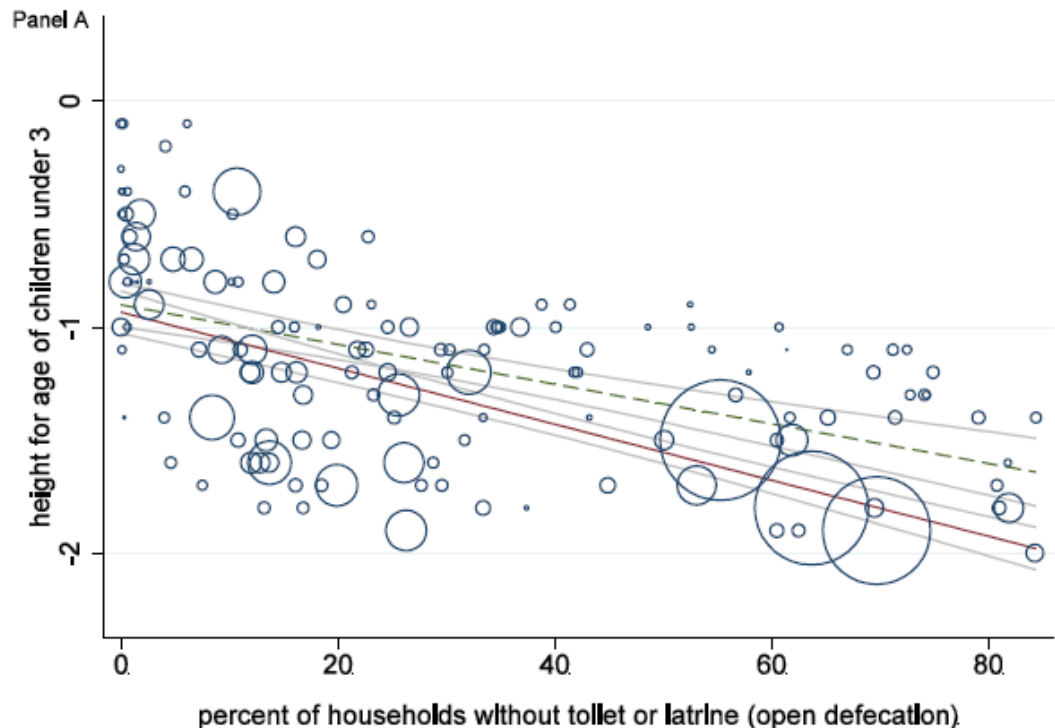
# SCOPE OF THE RISK

- 2.1 billion people lack safe water at home
- 2.9 billion people lack safe sanitation systems
- Diarrheal disease accounts for ~9% child mortality (UNICEF 2014) and contributes in a dose-response relationship to stunting:
  - One multi-country analysis attributed 25% of growth faltering to diarrhea among children with 5+ episodes before age 24 months (Checkley 2008)
- As much as 40% of stunting may be attributable to EED



# EVIDENCE

- **Meta-analysis of WASH and diarrhea risk (Cairncross, 2010)**
  - Handwashing with soap (HWWS) reduced by ~48%
  - Water treatment reduced by ~17%
  - Improved sanitation reduced by ~36%
- **Open defecation is associated with higher rates of stunting, particularly where population density, and thus cross-contamination, is high (Spears 2012) Data from 140 DHS:**
- **Improved food hygiene practices can reduce fecal contamination of complementary foods (Islam 2013)**



# PRIORITY WASH STRATEGIES

- **Handwashing with soap & Tippy Tap**
  - Low-cost local materials, conserve water
  - Visual reminder, placed near latrines and kitchen
- **Food hygiene**
  - Wash hands & cooking utensils
  - Storing food covered, reheating thoroughly
- **Community-led total sanitation**
  - Safe disposal of human feces
  - Community mobilization to reach ODF
- **Safe water transport, treatment and storage**
  - Treat water with effective method (solar, chlorine)
  - Store in closed container with narrow opening to prevent dipping
- **Protect young children from animal feces and soil**
  - Culturally-specific solutions

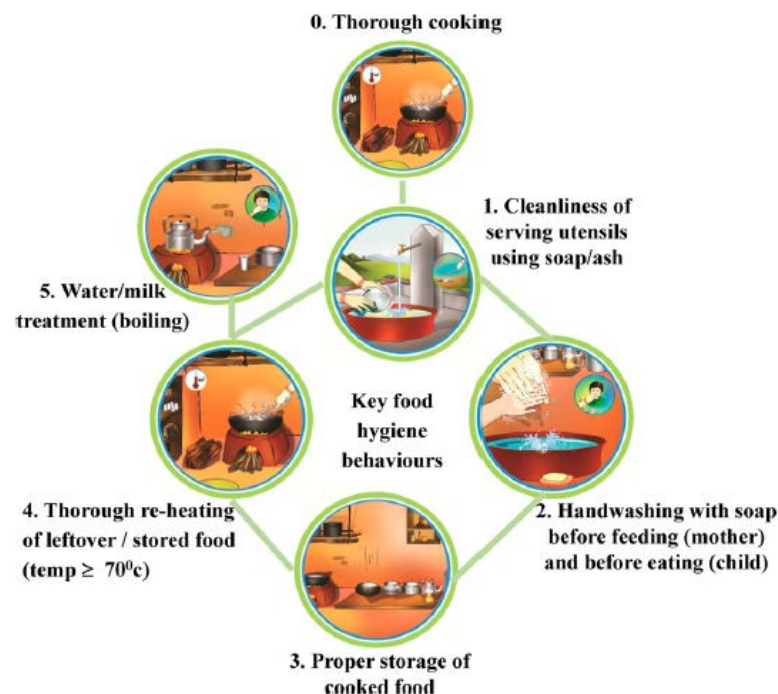


FIGURE 1. Five key prioritized food hygiene behaviors (from 1 to 5).



**WASH PRACTICES ARE VERY HARD TO CHANGE!**

# SOCIAL & BEHAVIOR CHANGE

Changing WASH behaviors requires changing:

- **Environment:** physical infrastructure, masons, san-marts, resources, water
- **Social norms:** shared values, achieve nurture, avoid stigma
- **Motivations:** aspirations, self-efficacy, disgust, perceived threat
- **Habits:** practice, reminders, routines



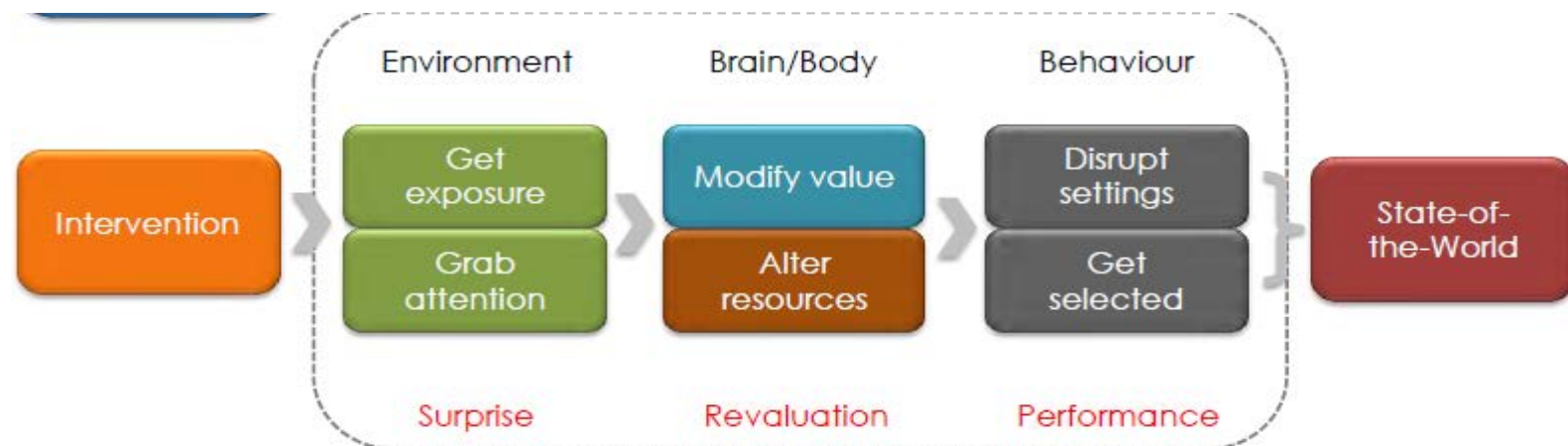


## THEORY & PROGRAM EXAMPLES

# BEHAVIOUR CENTERED DESIGN – EVO/ECO

The Environmental Health group of LSHTM (Auger & Curtis) approach combines evolutionary and cognitive psychology and marketing best practices.

- Formative research on emotional drivers
- Grab attention
- Improve access
- Disrupt setting/expectations to break old habits & facilitate new
- Use creative marketing talent



# APPLICATION – SUPERAMMA

**Promoted handwashing with soap (HWWS) in rural Andhra Pradesh**  
**Campaign designed by creative agency, Centre of Gravity**

- Ideal, nurturing “Super Mother” branding
- Comic character to make filth vivid and memorable
- Public pledges verbal and written to commit
- Handwashing stations to facilitate
- Signs, stickers, posters to remind
- Caravans, community mobilization, school events



**Baseline HWWS at key events 1% intervention & control**

**6 month follow up HWWS was 37% intervention vs. 6% control**

**Intervention expanded to control communities**

**12-month follow up HWWS was 29% in both 12-month and 6-month arms**

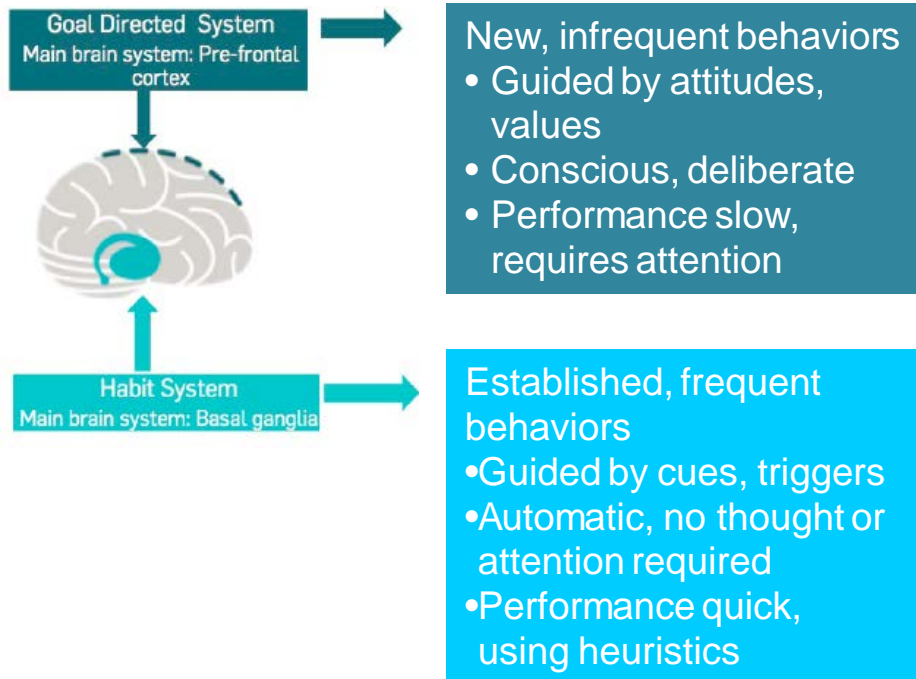


# SCIENCE OF HABIT

**Changing attitudes towards handwashing often fails to change practice, especially in long-term**

**45% of human behavior is habitual to free brain for other tasks**

- **Solution is to make HWWS at key occasions an automatic, reflexive behavior rather than needing conscious thought and planning**



# APPLICATION – “RATIONAL ADDICTION”

## Field experiment in handwashing, West Bengal (Hussam & Rabbani et. al. 2016)

- MIT media lab developed soap dispenser with sensor
- Dispensers and soap provided to HH
- Objective to reinforce “habit loop”
  - Trigger (evening meal)
  - Routine (handwashing)
  - Feedback (social or monetary incentive)
- Repetition should drive habit formation

## Findings:

- Monitoring of performance (social incentive) increases (+23%)
- Modest financial incentives increase further (+25%)
- New habits persist
- Diarrhea & respiratory infection reduced



## PRACTICAL APPROACH – SPRING BANGLADESH

**Group & individual counseling** for behavior change using Essential Nutrition & Hygiene Actions and **environmental change** and **visual cues** through promotion of Tippy Taps installed at **cooking areas and latrines** to increase handwashing with soap

- Structured observations showed mothers in HH with Tippy Taps washed hands with soap **46%** of key occasions vs. **10%** by non-participants
- **ENA-EHA group discussions** further enhanced handwashing
- HH reported appreciating feasibility of assembling Tippy Tap



# NEW MEDIA APPROACH: DIGITAL GREEN COMMUNITY VIDEOS

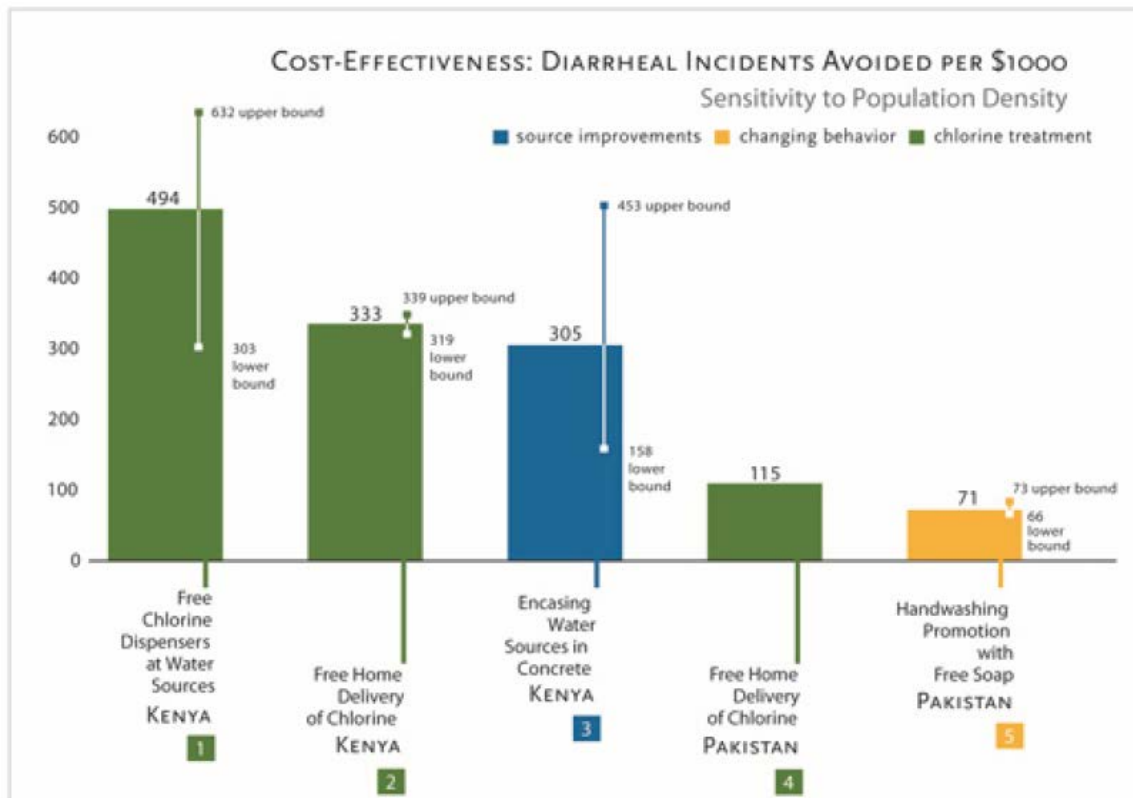


- Communities collaborate to produce videos using simple, low cost mobile technology with local scripts and actors to promote a range of healthy behaviors
- Community involvement builds ownership of ideas
- Edu-tainment: audiences motivated by watching characters like themselves adopt improved practices, e.g., handwashing with soap
- In Niger, SPRING project found an increase in HH with designated handwashing station, with soap, and relocation to kitchen area and latrine
- Indications of shift in social norms
- Cost-effective (~\$30 per HH)



# CHANGING THE ENVIRONMENT: CHLORINE DISPENSERS AT WATER POINTS

- The Jameel Poverty Action Lab has shown that the most cost-effective & sustainable strategy for reducing diarrhea is installing chlorine dispensers at water points where treatment becomes automatic
- Paid promoters raise awareness – peer pressure encourages use



# CONCLUSION

- Improving water, sanitation and hygiene conditions and practices are essential to reducing illness and improving child nutrition and growth
- Strategies must be comprehensive (target individual-community-environment)
- Many innovative promising approaches are being pursued





# THANK YOU.

*"The world is moved along, not only by the mighty shoves of its heroes but also by the aggregate of the tiny pushes of each honest worker." -Helen Keller*