



WATER MOVES MSU – The Fountain Challenge

Student drinking water fountain design competition

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1. Research Project & Axia Theme

Project theme:

Student teams design an innovative, functional and aesthetically-pleasing indoor or outdoor public drinking water fountain that addresses concerns about water quality.

The Fountain Challenge competition is part of WATER MOVES MSU, a campus-wide initiative, designed to educate, empower community action, and inspire creativity surrounding our most precious resource – water.

The aim of **The Fountain Challenge** is for students to create interdisciplinary teams to stimulate creativity. The competition will link the student teams with professionals in art and design, engineering, material science, sustainability sciences, landscape architecture and business to develop innovative designs for three types of public drinking water fountains.

Student teams will select one of these types of fountains to design:

- Community Fountain
- School Drinking Fountain
- Emergency Response



The scope of this project aligns with several key Axia Institute grand challenges including:

- Advancing Technologies
- Management of potential contaminants and pathogens in drinking water
- Humanitarian Impact

2. Value Created

➤ Improve Human Health

The project will ultimately improve human health by increasing access to safe, wholesome water in public places.

➤ Promote Economic Development

The project is also of value because it will develop and apply technologies for point-of-use devices, thus there is potential to promote economic development and create business partnerships to bring fountain designs to the consumer market.

➤ Engage the Community

The contest will engage a broader community in the project while promoting STEAM learning by students.

3. Results/Future Directions

Scientific Data:

- Data from randomized controlled trials in school settings have illustrated that drinking fountain installation decreased sugary beverage consumption and increased water consumption leading to decreases in weight gain [1].
- Sugary beverage consumption is an important component of dietary energy intake impacting body weight. Given the potential health benefits of increased water provision (particularly in schools), increased access to public water fountains may also promote healthy weights.
 - a. Obesity and being overweight are significant public health issues even for children and young adults, with the proportion of people overweight linearly increasing globally since 1990 [2].
 - b. Obese children are more likely to become obese adults [3].
 - c. Obese adults are at higher risk of cardiovascular disease and type 2 diabetes later in life [4].
 - d. Reducing obesity and overweight is a *global public health priority* [5].

Literature Cited

[1] Muckelbauer R, Libuda L, Clausen K, Toschke AM, Reinehr T, Kersting M: Promotion and provision of drinking water in schools for overweight prevention: Randomized, controlled cluster trial. *Pediatrics* 2009c, 123(4):e661-e667

[2] World Health Organization: Global status report on noncommunicable diseases 2010. . In. Geneva: World Health Organization; 2011.

[3] Wang Y, Beydoun M: The obesity epidemic in the United States: Gender, age, socioeconomic, racial/ethnic, and geographic characteristics: A systematic review and meta-regression analysis. *Epidemiologic Rev* 2007, 29(1):6-28.

[4] Ogden C, Yanovski S, Carroll M, Flegal K: The epidemiology of obesity. *Gastroenterology* 2007, 132(6):2087-2102.

[5] World Health Organization: Population-based approaches to childhood obesity prevention. In. Geneva: World Health Organization; 2012.

Future Goals:

- Exhibition of top designs at Michigan State University
- Fundraise for the purpose of constructing top fountain designs
- Establish new community and business partnerships

The Fountain Challenge Website

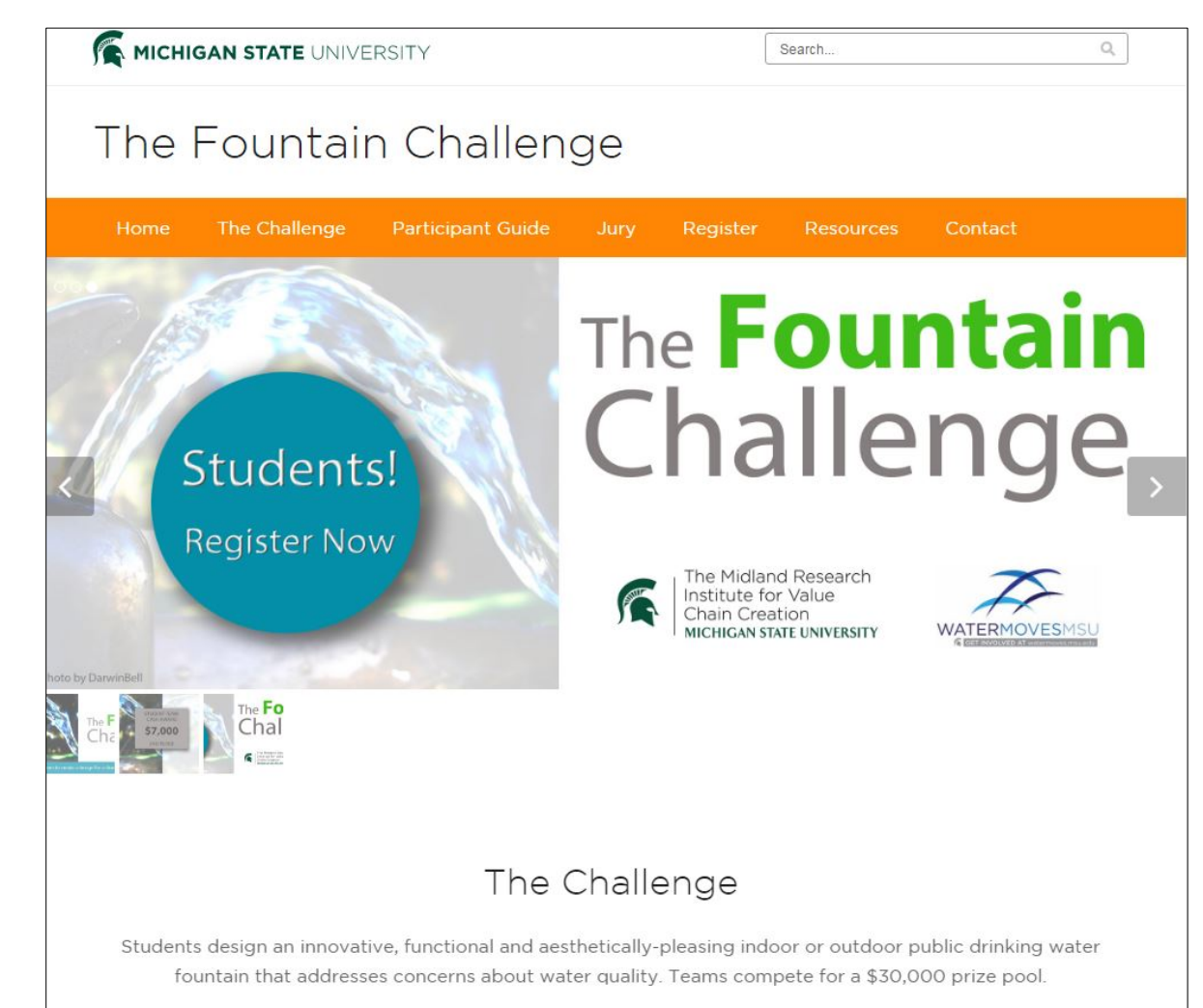
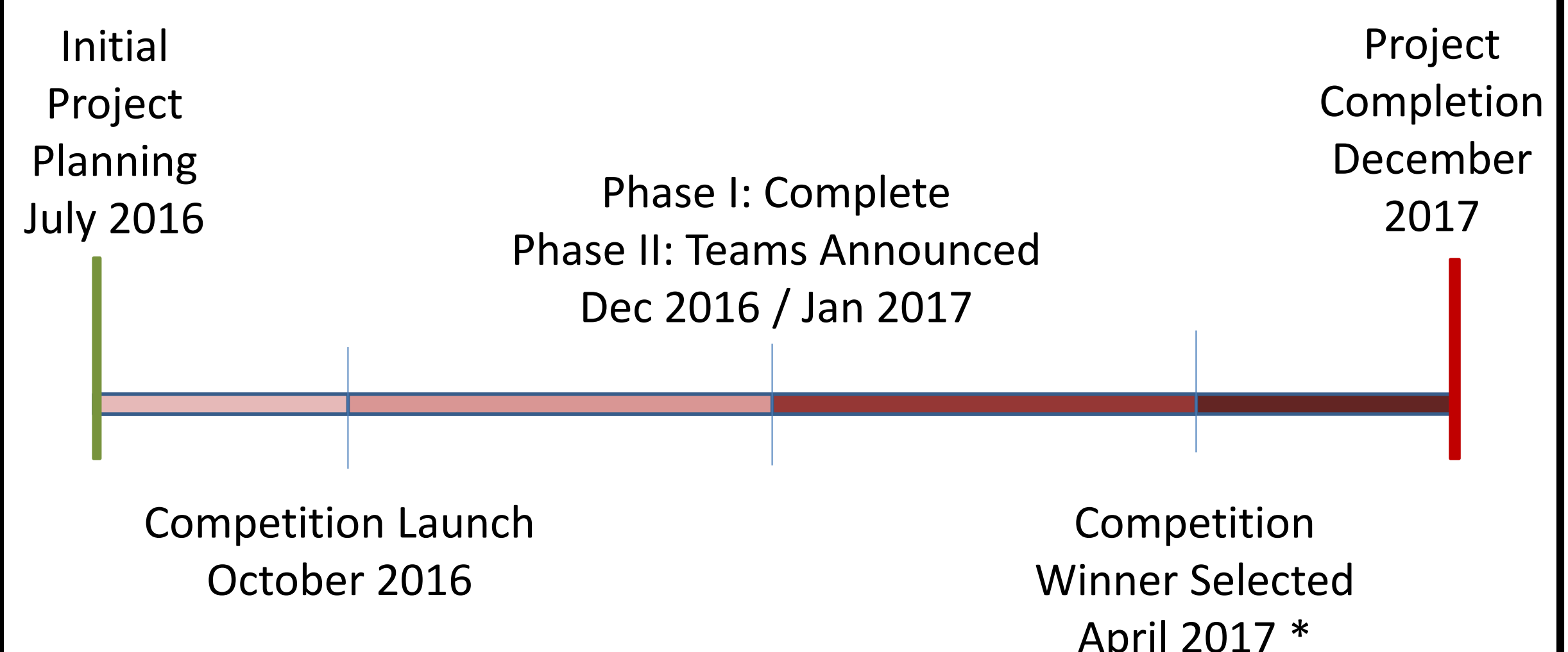


Figure 1: <http://fountainchallenge.msu.edu>

4. Project Timeline



*Phase III – April 2017 to December 2017. Will discuss potential to build winning design and seek funding.