

SINK OR SWIM

OR

SINK

Designing for a Sea Change



© IWAN BAAN

EDUCATOR RESOURCE GUIDE

ANNENBERG SPACE
FOR PHOTOGRAPHY





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JUERGEN NOGAI

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THE ANNENBERG SPACE FOR PHOTOGRAPHY
HISTORY • EXHIBITS • DESIGN

HISTORY The Annenberg Space for Photography opened to the public on March 27, 2009. It is the first solely photographic cultural destination in the Los Angeles area. The Photography Space is an initiative of the Annenberg Foundation and its board of directors. Its creation builds upon the Foundation's long history of supporting visual arts.



EXHIBITS The Annenberg Space for Photography does not maintain a permanent collection of photographs; instead, exhibitions change every four to six months. The content of each show varies and appeals to a wide variety of audiences.

DESIGN The interior of the Space is influenced by the mechanics of a camera and its lens. The central, circular Digital Gallery is contained within the square building much as a convex lens is contained within a camera. The Digital Gallery's ceiling features an iris-like design reminiscent of the aperture of a lens. The aperture design also enhances the Gallery's acoustics.

The Print Gallery curves around the Digital Gallery, representing the way film scrolls within a camera. The curvature of the ceiling line in the Print Gallery mimics the design of a film canister.



THE DIGITAL GALLERY

Seamless 13' 4K glass screens display photography with stunning clarity and saturation. The Digital Gallery allows for the display of thousands of images in a comparatively small location. In addition to showing images from the exhibiting photographers, the Digital Gallery screens short documentary films created to accompany the print exhibits.

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THE CURRENT EXHIBIT

AGE RECOMMENDATION • | OVERVIEW

SINK OR **SWIM**
Designing for a Sea Change



AGE RECOMMENDATION

Sink or Swim: Designing for a Sea Change is recommended for ages 10 and above, but with supervision, all ages are welcome.

OVERVIEW

Sink or Swim: Designing for a Sea Change explores the human story of resilience, from adaptation for survival to ambitious infrastructure planning, in some of the richest and poorest of the world's coastal communities. Rather than showing pristine architectural photography, the photographs present viewers with various human responses to changes in their landscapes due to sea level rise. *Sink or Swim* aims to foster critical dialogue through the provocative juxtaposition of diverse responses to a challenge shared by millions worldwide.

Curated by architecture writer and radio host Frances Anderton with the Annenberg Space for Photography, *Sink or Swim* features newly commissioned and archival works by photographers Iwan Baan, Jonas Bendiksen, Paula Bronstein and Stephen Wilkes. This is the first exhibition for Annenberg Space for Photography to feature commissioned works. Through the work of this select group of architectural, fine art and news photographers, the exhibition casts an eye on both the problem of climate change in densely populated coastal regions and contemporary design as a means to navigate the changing landscapes.

In the face of increasing global attention on climate change and rebuilding in the wake of Hurricane Katrina, the Indian Ocean tsunami, Superstorm Sandy, and the Tōhoku tsunami, *Sink or Swim* is a timely examination of resiliency strategies in architecture and design. Images range from highly complex coastal flood-mitigation in the Netherlands, controversial sea walls in Japan, to innovative homes and community buildings by leading architects including Pritzker prize-winners Shigeru Ban, Thom Mayne and Toyo Ito.

The exhibition also will showcase works focused on California by photographers Kip Evans, Monica Nouwens, Mark Holtzman and George Steinmetz.

An original documentary film commissioned by the Annenberg Space for Photography and produced by award-winning director Steven Kochones and Arclight Productions includes interviews with the artists, architects, historians and scientists engaged with climate resilient strategies for waterfront communities.



**IWAN BAAN**

Known primarily for images that narrate the life and interactions that occur within architecture, Dutch photographer **Iwan Baan** collaborates with the world's foremost architects, photographing institutional, public and private projects. He has worked with Rem Koolhaas, Herzog & de Meuron, SANAA, Morphosis, Frank Gehry, Toyo Ito, Steven Holl, Diller Scofidio + Renfro and Zaha Hadid, as well as young architects like Sou Fujimoto and Selgas Cano among others. Baan's work is characterized by emphasizing the human, social and environmental context surrounding architecture around the world. Baan's images appear frequently in *The New York Times*, *Domus*, *Abitare* and *The New Yorker*, among other leading publications.

**JONAS BENDIKSEN**

Norway-born **Jonas Bendiksen** is known for his focus on isolated communities and enclaves. Bendiksen began his career at the age of 19 as an intern at Magnum's London office, before leaving for Russia to pursue his own work as a photojournalist. His work has appeared in publications such as *National Geographic*, *Geo*, *Newsweek*, *The Independent*, *The Sunday Times Magazine*, and *The Telegraph Magazine*, among others. Bendiksen has been the recipient of numerous awards, including the 2003 Infinity Award from the International Center of Photography, New York, and first prize in the Pictures of the Year International Awards.

**PAULA BRONSTEIN**

Paula Bronstein is an American frontline news and documentary photographer based in Bangkok, who has worked across the globe. Bronstein, a dedicated humanitarian and visual war correspondent, has photographed subjects as diverse as presidents and kings, natural disasters, political turmoil and conflict, and the most impoverished and vulnerable people on this earth, from Mongolia to Afghanistan and Africa. Formerly a staff member of the *Hartford Current* and the *Chicago Tribune*, Bronstein currently contributes to Getty Images and her work has appeared in numerous publications worldwide. A book of Bronstein's photographs entitled *Afghanistan between Life and War* will be published in 2015 by University of Texas Press.

**STEPHEN WILKES**

For more than two decades **Stephen Wilkes** has been widely recognized for his fine art and editorial photography. His photographs have been exhibited in both galleries and museums and featured in *The New York Times Magazine*, *Vanity Fair*, *TIME*, *Sports Illustrated*, *London Sunday Times* and *Condé Nast Traveler*. Wilkes' awards and honors include the Alfred Eisenstaedt Award for Magazine Photography, Photographer of the Year from *Adweek Magazine*, Fine Art Photographer of the Year 2004 Lucie Award, Adobe Breakthrough Award and the Epson Creativity Award. Wilkes' newest body of work is titled "Day to Night," embodying the epic cityscapes with fleeting moments throughout the day.

PRE-VISIT ACTIVITIES

COMMON CORE STANDARDS FOR ELA 6-12

NOTED BESIDE ASSIGNMENTS

PRE-VISIT ACTIVITY #1**Title:** Engineering Solutions**Connection to the Exhibit:**

Sink or Swim: Designing for a Sea Change presents a variety of creative solutions to changing landscapes in some of the richest and poorest of the world's coastal communities. These range from merely adapting former structures and designs for survival, to complex and ambitious infrastructure planning and innovation. No matter the location, and whether designed by a famous architect or a subsistence farmer, the same basic concepts of engineering for resilience are being implemented.

Next Generation Science Standards:*Middle School Engineering Design*

MS-ETS1-1

Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions.

MS-ETS1-3

Analyze data from tests to determine similarities and differences among several design solutions to identify the best characteristics of each that can be combined into a new solution to better meet the criteria for success.

Science and Engineering Practices

1. Defining problems
2. Developing and using models
4. Analyzing and interpreting data
6. Designing Solutions

Crosscutting Concepts

3. Scale, proportion and quantity. In considering phenomena, it is critical to recognize what is relevant at different measures of size, time and energy and to recognize how changes in scale, proportion or quantity affect a system's structure or performance.
6. Structure and function. The way in which an object or living thing is shaped and its substructure determine many of its properties and functions.



Glossary of Relevant Terms and Concepts:

Structure, foundation, buoyancy, beam, durability, flexibility

Materials Needed:

Toothpicks, popsicle sticks, string, various types of tape (cellophane, masking, duct, electrical), sink(s) or large dish tubs filled with water, skewers, small resealable bags, large resealable bags, film canisters with lids, clay, other craft/building materials.

Large Group Activity:

- Begin a discussion of buildings and their uses. What are the common elements of all buildings? What are the basic shapes and building materials? Which elements are absolutely required for survival and which are luxuries? How does water affect these elements and building materials?

Small Group Activity:

- Present students with the following challenge: *You live in an area that has very few resources, with a landscape that is consistently underwater at a constantly changing level. Using the materials provided, design a building that will allow you to live comfortably, no matter the water level outside.*
- Together with the class, come up with a list of criteria that will define a successful building.
 - o Step 1: Discuss ideas within your group and sketch out a design for your building.
 - o Step 2: Build a prototype of your design.
 - o Step 3: Test your prototype in the sink or tub of water and note the strengths and weaknesses of your design.
 - o Make changes to your design and test it again.
- Ask each student group to present their completed building to the class. The entire class may then evaluate the building according to the evaluation criteria, giving the presenting group an opportunity to defend their ideas. After all groups have presented, discuss what they have learned from this experience and which elements of each building could be combined into a final product.

PRE-VISIT ACTIVITY #2

Title: Resilience in the Face of Disaster

Connection to the Exhibit:

Sink or Swim: Designing for a Sea Change presents an overview of the aftermath of the destructive forces of nature and their effects on human populations. Some cultures have found ingenious ways of maintaining their communities in the face of these forces through complex infrastructure, while others have been focused on mere survival and adaptation. The major theme of the exhibit is a focus on human resilience and its span across generations and cultures. Much can be learned about our common humanity by viewing these responses to disaster.

California Visual and Performing Arts Standards:

Grade 6

4.0 Aesthetic Valuing

- 3.1 Construct and describe plausible interpretations of what they perceive in works of art.

Grade 8

3.0 Historical and Cultural Context

- 3.1 Examine and describe or report on the role of a work of art created to make a social comment or to protest social conditions.

4.0 Aesthetic Valuing

- 4.2 Develop a theory about the artist's intent in a series of works of art, using reasoned statements to support personal opinions.

Grades 9-12 Proficient

4.0 Aesthetic Valuing

- 4.1 Articulate how personal beliefs, cultural traditions and current social, economic and political contexts influence the interpretations of the meaning or message in a work of art.

Glossary of Relevant Terms and Concepts:

Aerial perspective, contrast, mood





Large Group Activity:

- Ask students to look carefully at the first two photographs above as examples of the immediate aftermath of flooding and a community's response.
- Use Visual Thinking Strategies to analyze the photographs from two points of view: that of the outside observer and that of the subject. Use the following questions to guide your discussion.
 - What is going on in this picture?
 - What do you see that makes you say that?
 - What more can we find?
- Encourage the students to talk about what they observe and back their ideas up with evidence from the photos, while listening to and considering the views of others. Discuss multiple possible interpretations of each photograph.



Small Group Activity:

- Display the photograph above, the Makoko Floating School in Lagos, Nigeria. Use the Visual Thinking Strategy questions to elicit initial responses from students.
- Explain to students that this is a prototype floating structure that will serve primarily as a school, but can be adapted for other uses, such as a health clinic, market, community center, entertainment center or housing. The building has three levels. The first level is an open play area for school breaks and assemblies, which also serves as a community space outside school hours. The second level is an enclosed space for two to four classrooms. A staircase on the side connects the open play area, the classrooms and a semi-enclosed workshop space on the third level.
- In small groups, allow students to discuss the photo and to compare and contrast the school building with their own schools and/or community spaces. Why was the physical building designed this way? Why was it created for so many uses? How does this design reflect the difficulties of living in the Lagos area and the resilience of the Lagos population? How do its uses compare to the uses of your own school buildings?

Individual Work:

- Ask students to research the history of flood control and water infrastructure in the Netherlands. Have them create a timeline of the different methods and strategies used by the Dutch over the centuries, from building terps (artificial dwelling hills) to the current Delta Works Project, focusing on the positive and negative effects of each. What lessons did the Dutch learn from each strategy, and how did those inform their next idea?
- Once they have completed their timeline, ask students to think about the architecture they saw in other waterlogged countries such as Nigeria, Benin or Bangladesh. How do the flood control strategies being used in these countries compare to those of the Netherlands? What statement do they think the photographers might be making about human ingenuity? What other examples can they find of ingenuity in design around the world?

PRE-VISIT ACTIVITY #3

Title: Resilient Design

Connection to the Exhibit:

Sink or Swim: Designing for a Sea Change presents viewers with various human responses to changes in their landscapes due to sea level rise. It spans the entire geography of the world, from cultures rooted on the water like those of Nigeria and Bangladesh, to the Netherlands' complex system of dikes and sea gates to protect their communities. The exhibit explores the concept of resilient design, which is the intentional design of buildings, landscapes and communities in order to quickly regain functionality in response to the increasing effects of climate change such as natural disasters, loss of power, flooding and droughts.

California Visual and Performing Arts Standards:

Middle School

MS-LS2-5

Evaluate competing design solutions for maintaining biodiversity and ecosystem services.* [Clarification Statement: Examples of ecosystem services could include water purification, nutrient recycling and prevention of soil erosion. Examples of design solution constraints could include scientific, economic and social considerations.]

High School

HS-ETS1-1

Analyze a major global challenge to specify qualitative and quantitative criteria and constraints for solutions that account for societal needs and wants.

HS-ETS1-3

Evaluate a solution to a complex real-world problem based on prioritized criteria and trade-offs that account for a range of constraints, including cost, safety, reliability and aesthetics as well as possible social, cultural and environmental impacts.

HS-ESS3-4

Evaluate or refine a technological solution that reduces impacts of human activities on natural systems.* [Clarification Statement: Examples of data on the impacts of human activities could include the quantities and types of pollutants released, changes to biomass and species diversity or areal changes in land surface use (such as for urban development, agriculture and livestock, or surface mining). Examples for limiting future impacts could range from local efforts (such as reducing, reusing and recycling resources) to large-scale geoengineering design solutions (such as altering global temperatures by making large changes to the atmosphere or ocean).]

Glossary of Relevant Terms and Concepts:

Climate change, storm surge, resilient design, ecosystems services

Materials Needed:

Access to Internet





Large Group Discussion:

- Use the Stephen Wilkes photo above to inspire a discussion of the effects of Hurricanes Katrina and Sandy on American cities. Guide the discussion into a general overview of the effects of climate change and sea level rise around the world. Ask students to brainstorm what would happen if the sea level were to rise by three feet in Southern California.
 - o What would happen to coastal beach communities?
 - o How would this affect homes? Businesses? Schools?
 - o How would this affect the power grid, access to clean water and fresh food, waste disposal, etc.?
 - o What effect, if any, would it have on inland communities?
 - o What would happen during large storms?
- Brainstorm potential solutions to this issue in the Los Angeles area. Students might have ideas related to sea walls/protective buffers, moving buildings and communities inland, building houses on stilts, etc. Talk about the principles and strategies of resilient design (resources below).
- Now ask students to imagine they live in an area of the world which does not have access to the luxuries we take for granted: few monetary resources, rudimentary building materials, little governmental support. How would this change their ideas of how sea level rise would affect their community?
- Links to resources that may help with large group discussion:
 - o <http://www.resilientdesign.org/the-resilient-design-principles/>
 - o <http://www.resilientdesign.org/resilient-design-strategies/>

Pair 1:



Pair 2:



Small Group Activity:

- Assign each group a pair of photos to analyze for their ability to maintain ecosystem services within the constraints of their environment. These constraints may include water purification, soil erosion, available natural resources, and other social, cultural or environmental impacts.
- Use the Internet to research the two Netherlands projects and the stilt houses of Ganvie, Benin. Which principles or strategies of resilient design were used by the architects of these structures?

Individual Work:

- Find and photograph a structure in your community that you believe is a good example of resilient design. Write a paragraph defending your opinion.

The photos in this exhibit show a wide array of human responses to sea level rise. In general, there are five different strategies for coastal defense against rising seas. Find an example of each coastal defense strategy below in the exhibit photographs.

A. **Do nothing** – Provide no protection for beaches and buildings, leading to eventual abandonment.

B. **Managed retreat or realignment** – Allow low-lying areas to become flooded by the sea, abandoning or relocating structures to higher ground.

C. **Hold the line** – Engineering to protect current coastlines.

- a. “Hard” engineering – concrete or rock structures (seawalls, groynes, breakwaters, revetments)
- b. Soft engineering – beach nourishment and sand dune stabilization

D. **Move seawards** – Construct new defenses (seawalls, dunes, breakwaters, beach nourishment) further out to sea than the original coastline.

E. **Limited intervention** – Encouraging the natural growth of salt marshes and sand dunes to protect coastlines, and raising buildings vertically off the ground to accommodate rising sea levels.



Structures are built for many purposes, but all meet some basic need of humanity. Buildings may be built to:

- provide shelter
- provide goods
- provide services
- foster community
- provide educational opportunities
- provide recreational opportunities

Take a close look at the photos in the gallery. Choose 10 and label them with their location (country) and which of our basic needs they fulfill. Which of these needs do you feel is most important?

Example: Inflatable concert hall, Japan (Iwan Baan) - provide recreational opportunities

1. _____

2. _____

3. _____

4. _____

5. _____

6. _____

7. _____

8. _____

9. _____

10. _____

POST VISIT REFLECTIVE QUESTIONS



1. Each of the artists who have contributed to the *Sink or Swim: Designing for a Sea Change* exhibition has a unique perspective and theme to their work. Choose one of the photographers featured in the exhibit and write a critique of their photo series. [Use the appropriate VPA standard (below) to focus the students' work.]

California Visual and Performing Arts Standards:

Grade 6

- 5.0 Connections, Relationships, Applications
- 5.5 Establish criteria to use in selecting works of art for a specific type of art exhibition.

Grade 8

- 4.0 Aesthetic Valuing
- 4.2 Develop a theory about the artist's intent in a series of works of art, using reasoned statements to support personal opinions.

Grades 9-12 Proficient

- 3.0 Historical and Cultural Context
- 3.3 Identify and describe trends in the visual arts and discuss how the issues of time, place and cultural influence are reflected in selected works of art.



2. Choose one of the following photos from the *Sink or Swim* exhibit and analyze it based on the appropriate standards for the grade level.
- a. Middle School – Elements of Art (color, shape/form, line, texture, space, value)
 - b. High School – Principles of Design (balance, contrast, dominance, emphasis, movement, repetition, rhythm, subordination, variation, unity)



3. One of the main themes that emerge in the *Sink or Swim* exhibition is the striking difference in architectural solutions to problems caused by climate change in First World vs. Third World countries. Write a three-page assessment of the influence of science, engineering and technology on society and the natural world. Compare the low-tech structural and farming innovations presented in Iwan Baan's and Jonas Bendiksen's photographs of Nigeria, Benin and Bangladesh with the high-tech solutions created by architectural firms in the United States, the Netherlands, Japan and Spain. How is the use of technology driven by individual or societal needs, desires and values; by the findings of scientific research; and by differences in such factors as climate, natural resources and economic conditions?

Annenberg Learner offers a broad selection of multimedia resources to help teachers increase their expertise and to use with students in the classroom. The information below provides links to Annenberg Learner materials related to the themes of *Sink or Swim: Designing for a Sea Change*. Visit www.learner.org to see the full library of resources.

Engineering

Blog post

<http://learnerlog.org/scienceandnature/solving-real-world-problems-national-engineers-week-february-16-22/>

Design/Architecture

Program 11, "The Urban Experience"

<http://www.learner.org/courses/globalart/theme/11/index.html>

Natural Disasters

Earth Revealed, program 9, "Earthquakes"

Program 13, "Volcanism"

Program 16, "Mass Wasting"

Program 23, "Glaciers"

Program 24, "Waves Beaches and Coasts"

<http://www.learner.org/resources/series78.html>

Volcanoes Interactive

<http://www.learner.org/interactives/volcanoes/entry.html>

Teaching Geography, workshop 2

<http://www.learner.org/workshops/geography/workshop2/wkp2intr.html>

Climate Change (particularly rising sea levels)

The Habitable Planet,

Program 12, "Earth's Changing Climate"

<http://www.learner.org/courses/envsci/unit/text.php?unit=12&secNum=0>

Program 5, "Human Population Dynamics" (especially the second case study, which looks at coastal communities in the Third World)

<http://www.learner.org/courses/envsci/unit/text.php?unit=5&secNum=0>

Program 13, "Looking Forward: Our Global Experiment" <http://www.learner.org/courses/envsci/unit/text.php?unit=13&secNum=0>

More on climate change in our blog posts:

<http://learnerlog.org/scienceandnature/why-should-schools-teach-about-climate-change-part-i-of-ii/>

<http://learnerlog.org/scienceandnature/ways-to-teach-about-climate-change-part-ii-of-ii/>



Ecosystems and Extinction

The Habitable Planet, program 9, "Biodiversity Decline"

<http://www.learner.org/courses/envsci/unit/text.php?unit=9&secNum=0>

Rediscovering Biology, program 12, "Biodiversity"

<http://www.learner.org/courses/biology/units/biodiv/index.html>

The Vulnerability of Third World Populations

The Habitable Planet, program 5, "Human Population Dynamics"

<http://www.learner.org/courses/envsci/unit/text.php?unit=5&secNum=0>

- Pg. 4, top:** © Iwan Baan
- Pg. 4, bottom:** © Iwan Baan
- Pg. 9, top:** © Paula Bronstein, Courtesy of Getty Images
- Pg. 9, bottom:** © Jonas Bendiksen
- Pg. 10:** © Iwan Baan
- Pg. 12:** © Stephen Wilkes
- Pg. 13, all:** © Iwan Baan
- Pg. 17, top, left:** © Iwan Baan
- Pg. 17, top, right:** © Paula Bronstein
- Pg. 17, bottom, left:** © Stephen Wilkes
- Pg. 17, bottom, right:** © Paula Bronstein, Courtesy of Getty Images