

IPRO 325

Designing Affordable Water, Energy, and Shelter Solutions for the World's Poor



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Overall Team Objective

To design, test and implement solutions costing \$5 or less that can be implemented and maintained by local people using locally available materials.

Overarching Ethical Principle

To Improve the quality of life for the world's rural poor

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IPRO 325 Overview



Team Milestones

- Fall 2006:
 - Identified Top Ten Problems
 - Began campus awareness campaign
 - Narrowed scope to Water, Energy and Shelter
- Spring 2007:
 - Developed solutions in Water and Energy
 - Increased campus awareness
- Summer 2007:
 - Field Research with Dr. John Duffy in Peru
- Fall 2007:
 - Developed solutions in Water, Energy and Shelter

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THE PROBLEM





SODIS Method



- Solar disinfection process
- Some drawbacks

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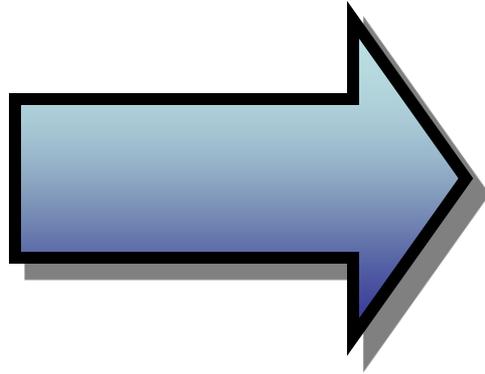
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La Conquista, Nicaragua

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IPRO 325 Presents

An Extremely
Affordable Solution

From Locally-
Available Materials



Our Strategy

- Research
- Make Prototypes
- Test Prototypes
- Create Field Manual
- Gain First-Hand Experience



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Our Strategy

1. Research Water Purification



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2. Make Filter Prototypes



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3. Test Filtration Prototypes



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Our Strategy

4. Make a Field Manual



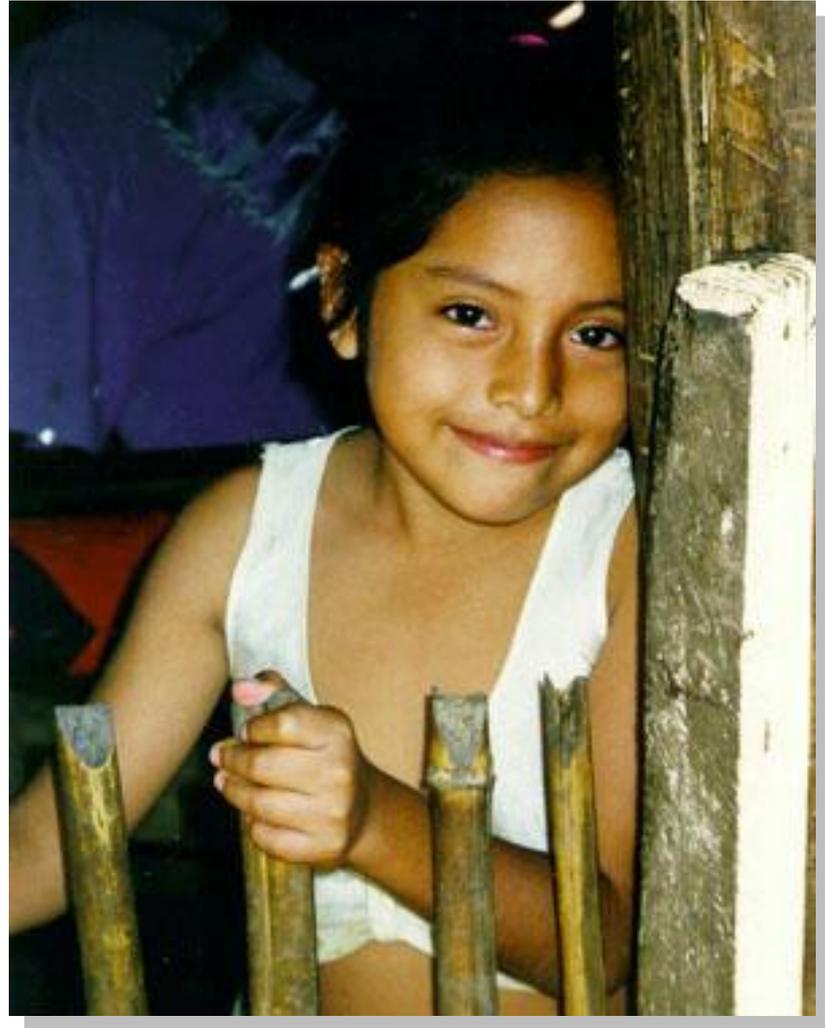
Field Manual

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Our Strategy

5. Gain First-Hand
Experience



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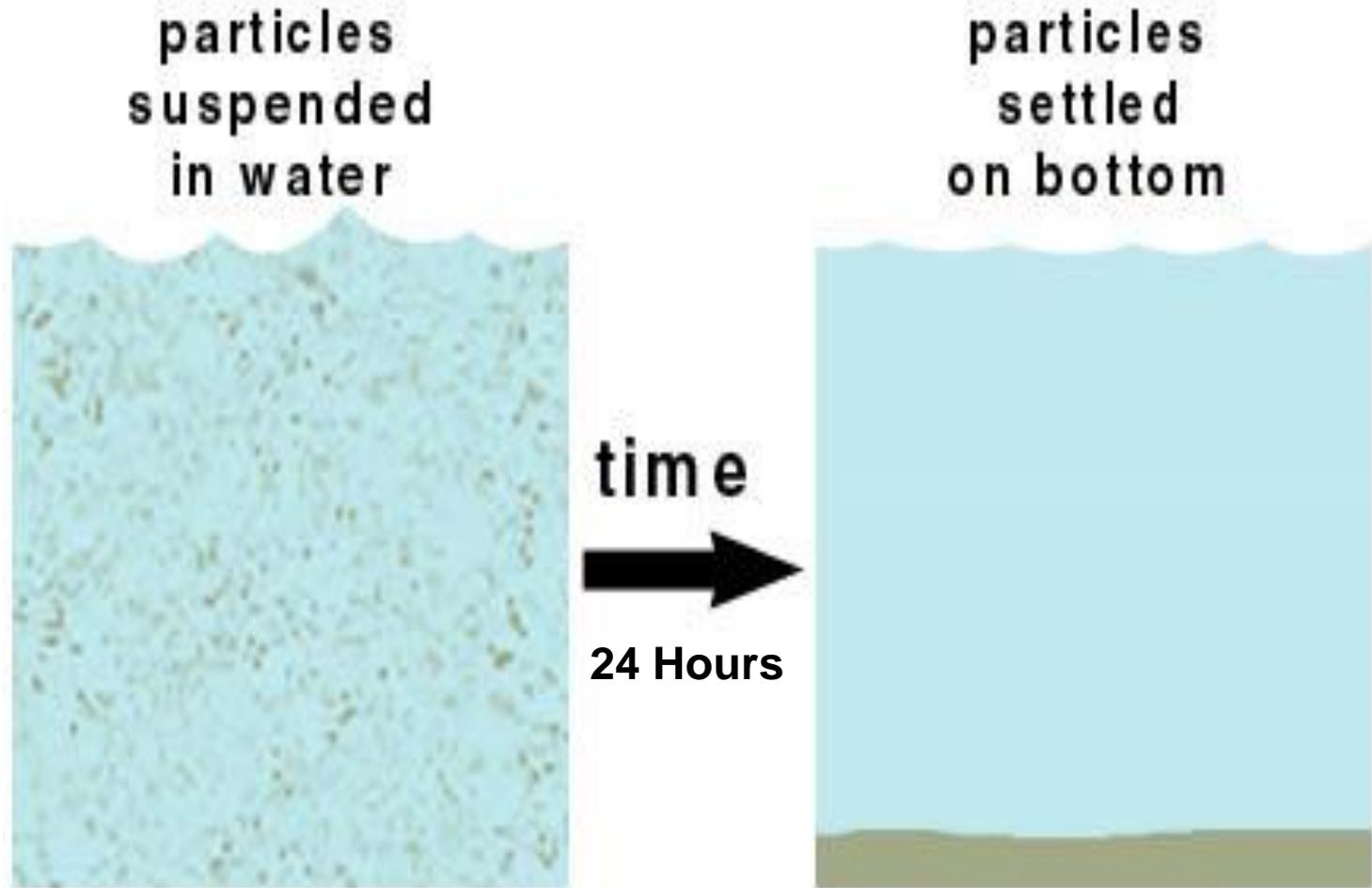
Designing and Testing a Filter



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The Competition



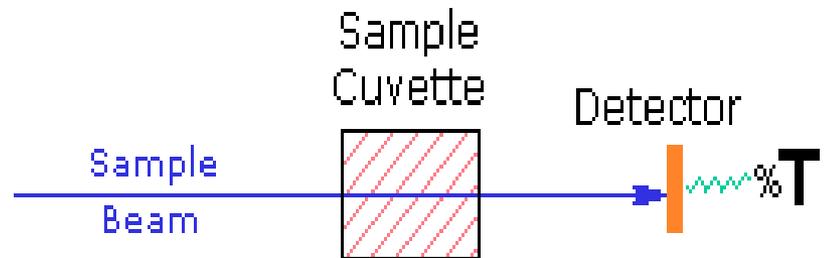
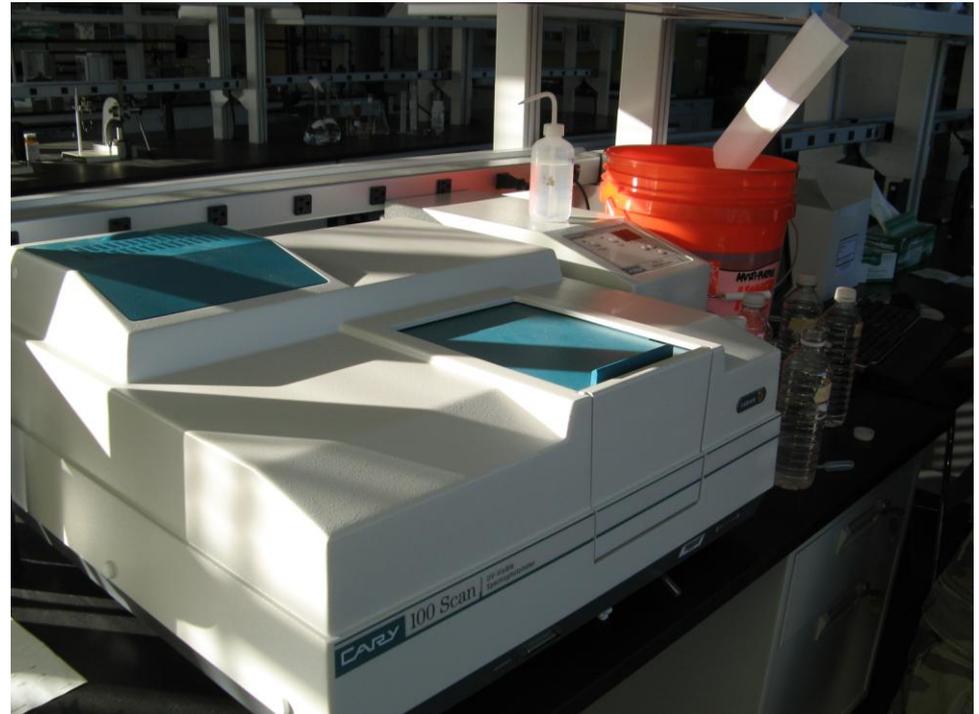
Sedimentation

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The Objective

- Rate
- Increase in Light Transmittance
- Cost
- Availability of Materials
- Ease of Use

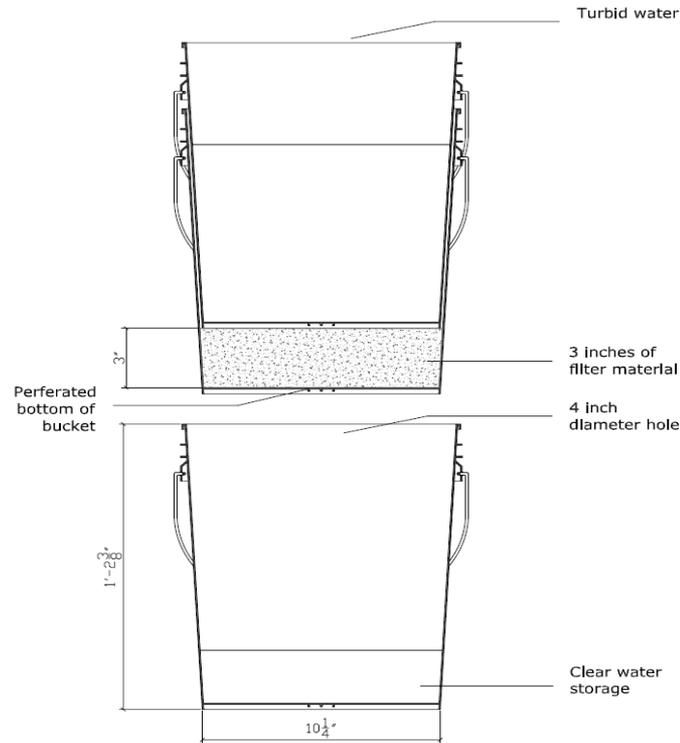


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The Three-Bucket System

3BS



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The Results

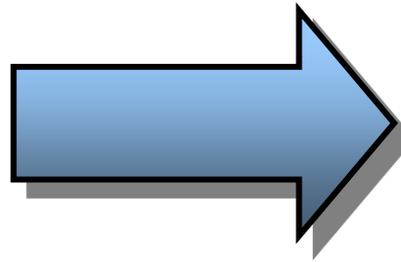


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The Redesign

3BS



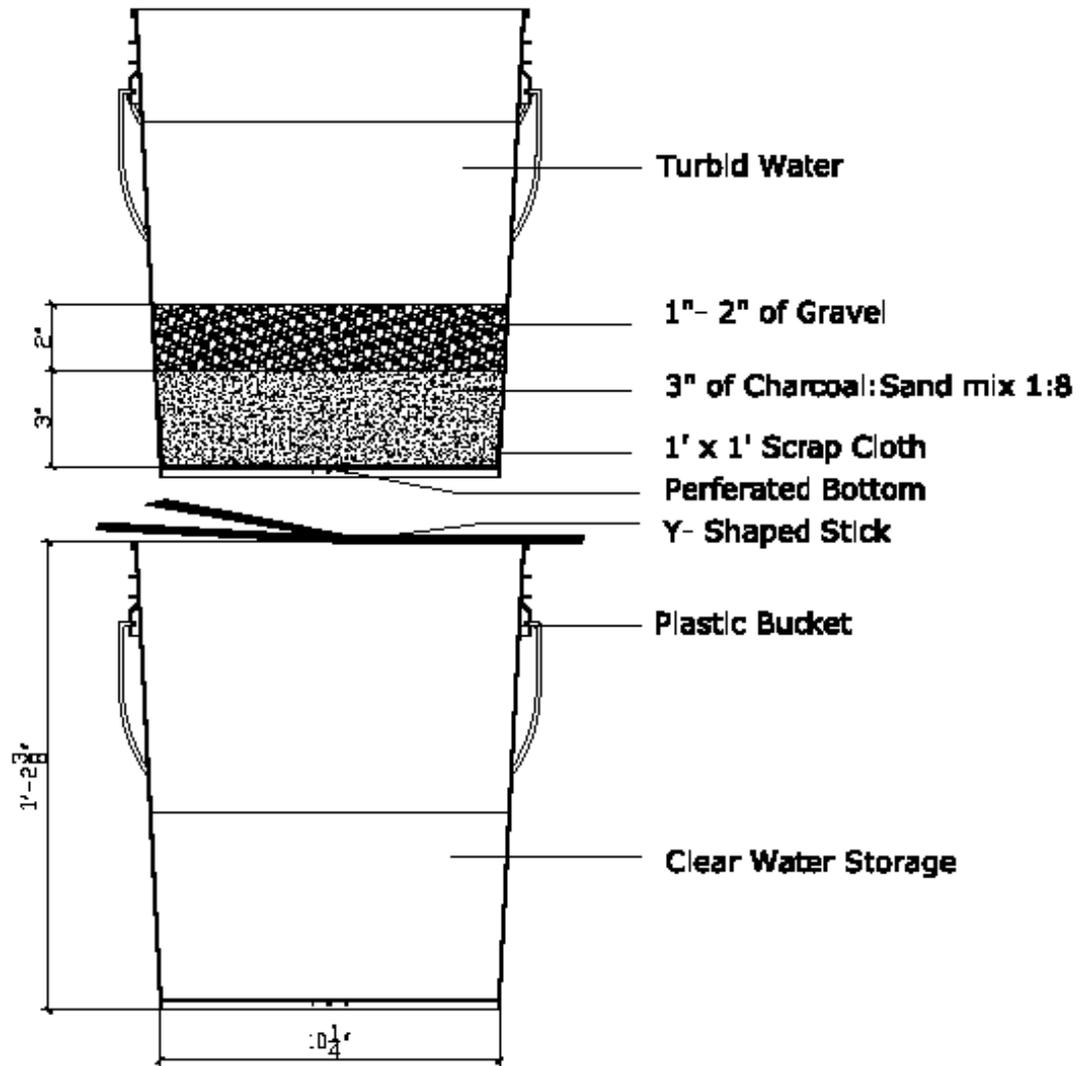
2BS



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2BS

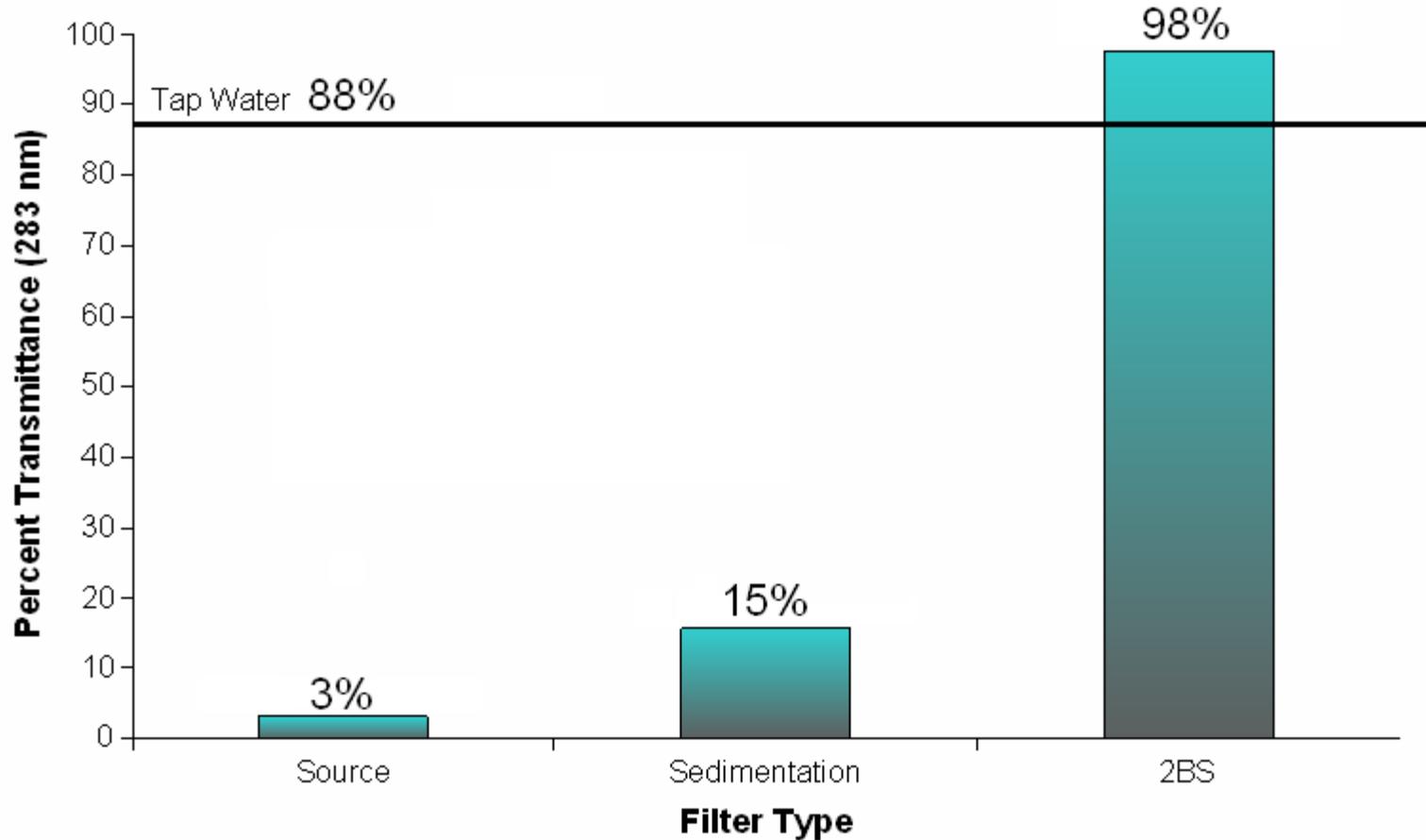


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Final Results

Percent UV Light Transmitted



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Field Manual

- Overcome language barriers
- Step by step
- Local population builds and repairs
- Allow the knowledge to spread



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Field Experience Trip

- 3 sub-team members will be travelling
- Peru team with University of Massachusetts, Lowell
- Nicaragua team with Simmons College



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Field Experience Objectives

- Observe the culture and lifestyle
- Observe the implementation teams in action
- Take water samples
- Form relationships



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Wrap Up

- Sustainable
- Locally available materials
- SODIS-oriented model
- Extremely affordable solution
- Multiple revisions of prototype
- Picture field manual



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Questions

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