

Supplemental Material to:

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**Putting problem formulation at the forefront of GMO risk
analysis**

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Supplementary Materials

Training Settings

The targets of these trainings in risk analysis strategies are novice risk assessors and GMO regulators, and more generally all actors in the decision-making chain. In these courses, the entire hands-on practical part was devoted to applying the problem formulation approach to evaluate hypothetical case studies. Using a limited amount of data concerning the GMO being evaluated, the ~40 participants (almost exclusively from developing countries) at each course, either in breakout groups or in plenary, took these cases through the steps described in Figure 1.

Summary of workshop participation

Date, Location	Hypothetical case studies	Regions ^{1,2} (No. participants)	Total no. participants
12-16 Oct 2009, Ca' Tron, Italy	<ul style="list-style-type: none"> Transplastomic petunia Insect-resistant (<i>Bt</i>) cotton 	NAfrica (4); SAfrica (3); CAmerica (4); NAmerica (2); SAmerica (2); SAsia (4); SEAsia (1); WASia (2); NEurope (1); SEurope (12); WEurope (2).	37
22-16 March 2010, Hermanus, South Africa	<ul style="list-style-type: none"> <i>Bt</i> cotton Drought-tolerant (DT) maize 	EAfrica (17); MAfrica (1); NAfrica (1); SAfrica (8); WAfrica (9); NAmerica (2); NEurope (2); SEurope (3); WEurope (1).	44
27 Sept– 1 Oct 2010, Trieste, Italy	<ul style="list-style-type: none"> Biofortified sorghum Stacked herbicide-tolerant <i>Bt</i> maize Virus-resistant tomato 	EAfrica (1); SAfrica (2); CAmerica (8); SAmerica (4); SAsia (2); SEAsia (1); WASia (2); NEurope (1); SEurope (11); WEurope (4).	36
3-7 Oct 2010, Kuwait City, Kuwait	<ul style="list-style-type: none"> High-lysine maize 	NAfrica (1); CAmerica (1); SAsia (1); WASia (20); NEurope (2); WEurope (2).	27
14-18 Dec 2010, Nairobi, Kenya	<ul style="list-style-type: none"> DT maize Tobacco expressing a mammalian metallothionein (<i>hMT2</i>) gene 	A&NZ (1); EAfrica (23); SAfrica (7); WAfrica (8); NAmerica (1); WEurope (2); SEurope (1).	43
7-12 March 2011, Pretoria, South Africa	<ul style="list-style-type: none"> Biofortified sorghum 	A&NZ (1); EAfrica (11); NAfrica (1); SAfrica (28); WAfrica (4); SAmerica (2); NEurope (1); SEurope (2); WEurope (2).	52
19-23 Sept 2011, Trieste, Italy	<ul style="list-style-type: none"> Biofortified sorghum DT maize 	A&NZ (2); EAfrica (1); NAfrica (2); SAfrica (1); WAfrica (6); CAmerica (1); SAmerica (1); EAsia (2); SAsia (1); SEAsia (1); WASia (2); EEurope (1); NEurope (3); SEurope (7); WEurope (2).	33
16-20 April 2012, Trieste, Italy	<ul style="list-style-type: none"> Biofortified sorghum DT maize Stacked herbicide-tolerant <i>Bt</i> maize 	EAfrica (4); NAfrica (1); SAfrica (1); CAmerica (1); SAmerica (3); Caribbean (1); SAsia (2); WASia (1); EEurope (2); NEurope (1); SEurope (8); WEurope (4).	29

¹The composition of regions follows UN guidance (see <http://unstats.un.org/unsd/methods/m49/m49regin.htm#europe>);

²The regions were abbreviated as: Australia and New Zealand (A&NZ); Eastern Africa (EAfrica); Middle Africa (MAfrica); Northern Africa (NAfrica); Southern Africa (SAfrica); Western Africa (WAfrica); Central America (CAmerica); Northern America (NAmerica); South America (SAmerica); Eastern Asia (EAsia); Southern Asia (SAsia); South-Eastern Asia (SEAsia); Western Asia (WAsia); Eastern Europe (EEurope); Northern Europe (NEurope); Southern Europe (SEurope); Western Europe (WEurope).