

## **CIMMYT report to AGM '05**

### **Executive Summary**

The CIMMYT Board and management have taken serious steps to address a number of the issues raised by the 5<sup>th</sup> EP MR and in response to subsequent discussion of the EP MR at the April '05 Science Council and May '05 ExCo meetings. The purpose of this report is to provide an update on progress towards improvements at CIMMYT in the areas identified by the EP MR; specifically, issues related to governance; business plan; finance; and, partnerships. In particular, CIMMYT is placing a very high priority on articulating its core competency in germplasm enhancement, targeted to the resource-poor in marginal environments in many eco-regions, through a re-focusing of resource allocation, both financial and staffing, and the development of technologies and research capacity in support of these activities. The Centre is currently advertising four (4) plant breeding positions and a further two positions have been approved in the 2006 budget. The business plan that CIMMYT has developed is a clear articulation of the implementation of CIMMYT's strategy "*Seeds of Innovation*".

### **Governance**

The CIMMYT Board has agreed upon a proposal for a new governance system for CIMMYT that will ensure basic functions as required by the CGIAR are performed. However, there will be a stronger emphasis on strategy, networking, resource mobilisation, oversight of administration and on the financial and fiduciary functions of a Board. To achieve this, the Board will progressively move, over the next twelve months, towards one that has enhanced skills for discharging the above mentioned functions and roles. The Board will also review implementation of the EP MR recommendations on a quarterly basis through management reports to the Board. The CIMMYT Board and management have developed a set of performance indicators, that go beyond those for the World Bank, in which there will be early 'warning' systems to ensure that the Board and management respond to yellow 'flags', proactively.

The Board will be further reduced in size (from 17 to 12) while at the same time ensuring that it has the necessary skills mentioned above, and that it remains diverse according to key criteria such as regions, gender and partnership. The Board will discharge its fiduciary and oversight responsibilities through more frequent meetings (quarterly for the Audit Committee, including at least half by electronic means). The Board views program and scientific quality oversight as an extremely important functions and will form each year *ad hoc* teams of eminent scientists to review and provide guidance on specific aspects of CIMMYT's research strategy, programs, outputs, outcomes and impacts.

The Board has taken steps to ensure that there is a clear separation of membership on the Audit, and the Finance and Administration Committees and the Executive Committee has been re-formulated with the additional role as a governance committee. In addition to these structural issues, the Board has maintained an active role in development of the IRRI-CIMMYT alliance. The two joint Board Committees of the Centres have met twice already, in June and July of this year.

### **Business Plan**

CIMMYT has developed a detailed business plan for the next five years. The plan will be implemented with effect January 2006. The focus has been on developing an operational plan for turning the vision of CIMMYT's "*Seeds of Innovation*" (2004) into a clearly articulated plan for the period 2006-2010. The plan places high priority on a strategy for directing additional resources (funds and staff) to our core activities of maize and wheat productivity enhancement

targeted at reducing poverty in areas where CIMMYT has a strong comparative advantage. Clarity of our research products; analysis of impact pathways (including the role of improved germplasm for target beneficiaries); an efficient structure to support the development and delivery of these products; and, partnerships for delivery of the benefits of CIMMYT's research, are integral components of the business plan. The plan also includes targets and milestones for implementing improved management information systems in the areas of finance, human resources and project management together with an outline of significant investments to be made on enhancing CIMMYT's genetic improvement programs.

### **Finance**

CIMMYT is well above Board mandated targets for achieving the CGIAR standards for financial health. The 2005 budget makes provision for adding a further \$2M to our reserves by the end of the year and the 30 September financial statements show this to be well within reach, thus bringing us to approximately 68 days. The 2006 budget, approved by the Board, provides for an additional 1M to be added to the reserve thereby ensuring that CIMMYT will have a reserve of approximately 78 days by the end of next year. During 2005, CIMMYT has actively sought additional funding and grant and sundry income is projected to be 4.492M more than forecast at the start of the year due, primarily, to a very significant increase in project income. This brings CIMMYT's projected income to 40.359M for 2005. During the past 3 years, CIMMYT has made very substantial progress towards turning around a difficult financial situation that was provoked by an extremely ambitious research agenda in the past; by the end of this year CIMMYT will have achieved three consecutive years of substantial surplus, thus creating the base for a strong reserve, without compromising on the centre's science quality and vitality.

### **Partnerships with other CGIAR centres**

During the first part of this year, CIMMYT has made significant progress in our partnerships with IRRI and ICARDA. The IRRI-CIMMYT alliance is progressing with concrete plans in three program areas (research informatics, intensive cropping systems in Asia, cereals knowledge bank) and good progress with discussions of a joint management and governance system. The development of a joint program in bio- and research informatics is especially crucial, given its importance across all aspects of the crop enhancement programs of the two centres. During the next 12 months, IRRI and CIMMYT will have two Board members in common, one of whom will assume leadership of a joint program oversight committee for the three programs mentioned. In the longer term, CIMMYT considers that a single Board and one CEO is a goal of this alliance. The Board and Management of CIMMYT acknowledge that a strong and vibrant relationship with ICARDA is essential to the work for resource-poor farmers in the CWANA region and, towards this purpose, the CIMMYT Board has recently concluded a meeting at ICARDA in Aleppo. The two centres are very pleased to report that a new agreement for collaboration to undertake a joint program in the CWANA region has been signed. Another tangible example of the centres' collaboration may be seen in the development of a global rust initiative

<http://www.cimmyt.org/english/wps/news/2005/sept/griMeeting.htm>

### **Implementation of EPMR recommendations**

The 5<sup>th</sup> EPMR report contains 23 recommendations of which 12 are primarily related to governance and management and 11 to program. Of the 11 governance and management recommendations with which CIMMYT agrees (the 12<sup>th</sup> relates to an issue that has already been resolved), 9 recommendations have either been implemented or are in progress towards implementation. Of the 11 program recommendations, CIMMYT has made progress in implementing 4 of the recommendations; a number of the remaining are dependent on additional resources and, by nature, require a longer time frame to implementation (*further details of the EPMR recommendations may be found on pages 10-15*).

### **Summary of business plan 2006-2010: A solid future for CIMMYT and those it serves**

The business plan aims to show how CIMMYT will deliver key products that will meet real needs in the developing world over the next five years—needs that cannot, or will not be met by other organizations. It is client focused and practical, setting achievable targets that will have impact. It has been informed by the 5th EPMP report; feedback received from within CIMMYT and external stakeholders; changes in the external environment over the past two years; and, our own experiences gained during this period. The purpose of the plan is to bring clarity on how the vision presented in “*Seeds of Innovation*” will be transformed into reality through a clear, viable operational plan for the period 2006-2010.

A detailed analysis of trends and needs in maize and wheat shows that CIMMYT is the unique organization that can address the need for food security and develop products to improve the well-being of the marginalized who depend on maize or wheat. Under the headings:

- Strategic products as global public goods
- Partnership-based activities for product development and delivery
- Linking scientific excellence for the benefit of target beneficiaries
- Seeking solutions for global problems
- Research for impact on the lives of the world’s marginalized
- Building capacity

CIMMYT defines its position in global maize and wheat research for the developing world. This leads to the development of a set of “flagship products” that CIMMYT and its partners will work to develop over the period 2006-2010:

- 1) Stress tolerant maize for enhanced food security and crop diversification
- 2) Wheat with enhanced water productivity and appropriate quality profiles
- 3) Rust resistant wheat
- 4) Biofortified maize for improved nutrition and health
- 5) New targeted traits through access to beneficial genetic variation
- 6) Improved methodologies and tools for genetic improvement
- 7) Capacity building of NARS and SME breeding programs
- 8) Resource conservation technologies for maize and wheat cropping systems
- 9) Opportunities for income generation from special trait maize

In order to effectively produce and deliver flagship products to beneficiaries, CIMMYT will refine its management structure and streamline its administrative procedures. Projects (in the range \$1-6M) will become the primary budgeting and output entity of the organization. Projects will be clustered into units or programs so as to maximize efficiency with unit or program heads leading most projects.

The business plan calls for CIMMYT to work with a wide range of partners to effectively produce and deliver its products. These partners will range from ARI’s to NGO’s, from NARS to the private sector. The partnerships may also vary by geography, where the nature of product delivery may also be different. During the next 3-5 years we envisage continuing to evolve our work in order to build multidisciplinary critical mass teams focused on these appropriate product areas. It is clear that we must make a substantial new commitment to proactively build the capacity of NARS and SME breeding programs to ensure that the pace of change is appropriate to their increasing capacity and capabilities.

A financial plan to support the investments necessary to implement the business plan has been developed based on the most likely funding scenarios for the next five years. During this period, total income will increase by a modest 3% pa, primarily on the back of increased restricted project funding. Program expenditure will increase by 6.5% pa on average with indirect cost recovery, as a direct offset to program expenses, scheduled to increase from its current level of 33% to 100% by 2009. Together, these projections will result in CIMMYT meeting its CGIAR mandated financial indicators very early in the life of the plan (2007) while at the same time ensuring that program objectives will be met.

CIMMYT intends to rebuild in areas of its core expertise (for example, the Centre is currently advertising four (4) senior maize and wheat breeder positions), and will add a number of senior positions over the lifetime of the plan. Such additions are being achieved through reduction of activities in other areas, and by continuing to strive for increased efficiencies in breeding efforts. There will be reductions in the current level of agronomic research conducted in house based on the assumption that other service providers, such as sister centers, are better placed to deliver in this area.

### **Current challenges for CIMMYT**

The 5<sup>th</sup> EPMP and subsequent analysis have identified a number of challenges that CIMMYT is currently confronted with. These challenges have been addressed, we believe, in the development of the 2006-2010 business plan however, they are summarized here as a snapshot of CIMMYT's response to these very important issues.

#### **(1) Improving the impact of research information management and the efficiency of genetic enhancement:**

CIMMYT is committed to applying the most effective new methodologies in a constant process of modernisation, driving an increasing pace, scope and intensity of improved germplasm products, including globally decentralised selection ('shuttles'), mechanisation and automation of field based operations and the use of molecular level and related technologies (marker assisted selection, near infra-red screening, single seed descent, doubled haploids, bioinformatics). CIMMYT also proposes to maintain a strong engagement and competence in the use of transgenic technologies (GMOs) in its research activities although it is increasingly clear that transgenic product development will only become a focus where conducive political environments and diverse private sector delivery partnerships are solidly in place.

To the extent that many developed countries, and private enterprises, are heavily investing in the application of genomics, bioinformatics and related technologies it is essential that CIMMYT maintain credible capability in order to leverage effective partnerships and to ensure the products of such research are readily translated into potential germplasm benefits as global public goods for resource-poor farmers in developing countries.

CIMMYT will also upgrade its technical data management systems to improve internal analysis capacity, integrating different data sets from gene bank, laboratory, and field activities and to improve external access by partners and 'customers'.

Strengthened investment in the modernization and automation of field based operations, molecular level technologies and data management has capital and operational budget implications for CIMMYT; these are highlighted in the 5-year financial plan.

## **(2) Strengthening field-based crop improvement expertise**

CIMMYT has strong expertise in laboratory oriented activities that support crop improvement. CIMMYT's core competence over the years, however, has been field-based research, recognising that a holistic approach to genotype (G) by environment (E) by management (M) interactions is of paramount importance for enhancing the relevance and value of strategic products. CIMMYT has recently lost several experienced plant breeders due to retirement, career opportunities with other organizations and for other reasons, and there is a need to reinforce the commitment to field-based plant breeding operations. This will not be easy given the trend over the past two decades to an emphasis on molecular genetics in university research and teaching. CIMMYT is committed to recruiting plant breeders who can work across disciplines and laboratory and field based crop improvement programs.

## **(3) Product delivery and partnerships**

The *Seeds of Innovation* vision has rightfully given emphasis to a livelihoods approach to address intractable problems of poverty alleviation in contrast to an approach that simply focuses on increasing maize and wheat production at the expense of other crops and systems (e.g., livestock). CIMMYT will maintain its focus on maize and wheat research, but we will ensure that these crops are properly integrated into major cropping systems to add value to maize and wheat improvement. For example, maize stover is important in livestock-maize systems in Africa and our maize improvement efforts should be carried out, in partnership with organizations with expertise in livestock nutrition (e.g., ILRI), with this trait in mind.

The role of CIMMYT extends beyond the development of science-based solutions to associated technologies, methodologies, services and processes to make enhanced germplasm practically accessible and meaningful to resource-poor farmers. These associated functions include: knowledge sharing, capacity building (training), sustainable cropping systems, appropriate research facilities and equipment, seed delivery systems and an understanding of socio-economic constraints and impacts such as market dynamics and commodity effects on livelihoods. A portfolio of twelve (12) product development and delivery projects have been designed to be implemented, often at the regional level in partnership with a sister CGIAR centre, National Agricultural Research Systems (NARS), and small to medium enterprises (SMEs). The combination of dispersed locations, partnerships and multi-disciplinary tasks imposes significant management complexity and administrative costs on CIMMYT. The tighter definition of project goals, roles and responsibilities following the development of the business plan will allow for clearer implementation and management.

## **(4) Finance and administration**

Over the last decade CIMMYT's core unrestricted grant funding has fallen from \$18.6M in 1995 to \$13.3M in 2005 (a trend that is fairly consistent across the CGIAR centres). Discounting for inflation at 3% pa implies that the real value of core unrestricted funding has declined by about 40%. In addition, for CIMMYT, the appreciation of the Mexican peso in recent years and the substantial inflation of local wages and costs in Mexico (in dollar terms) has had a particularly significant effect on our operational costs.

In the same period restricted project funding has approximately doubled from \$12.9M to \$24.1M, of which more than 20% of the additional funding is for NARS and Advanced Research Institute (ARI) partners. The net effect of inflation, parity changes and the additional costs associated with

development projects has reduced the real value of CIMMYT's unrestricted funding very substantially. This decrease has been expressed in many areas that now need addressing:

- reduction of professional staff in core breeding functions that require stable, long-term investment
- sub-optimal adoption of modern breeding technologies and data management systems
- deferred maintenance and replacement of essential infrastructure including buildings, green houses, mechanisation of field station operations, and items of specialized laboratory equipment
- delayed implementation of an appropriate management information system, especially an updated financial system

CIMMYT has been relatively more dependent on restricted (project) funding since 1998 and it has been one of our failings to ensure that these funds contribute adequately to projects that have been properly and fully costed. For example, the 2006 budget projections show that just 38% of total indirect costs (19% of total costs) will be recovered from restricted/ project sources of income. In effect, this means that there will be a subsidy of these activities to the extent of 4.22M next year. The business plan calls for indirect cost recovery to reach 50% in 2007; 75% in 2008 and 100% in 2009, where indirect costs will comprise 20% of our total costs.

#### **(5) Management information systems (MIS)**

CIMMYT faces the challenge to invest adequate resources in the development and implementation of MIS applications required to maintain the effectiveness of its research support infrastructure. The need for investment in both systems and human resources is most apparent in the following key areas:

- Financial management information systems;
- Project management support systems;
- Human resource information systems.

##### Financial management information system

CIMMYT currently relies on PLATINUM as its FMIS. This is a DOS based application that is no longer supported by its original developer and is in urgent need of replacement.

Evaluation of alternative options has been undertaken and implementation of a replacement system will commence immediately, with the intention to complete the transition by mid- 2006.

CIMMYT invested in software licences for e-EPICOR a number of years ago but never moved to implementation due to human and financial resource constraints. Given the sunk cost of this investment, and the fact that several other centres have adopted this application, we are actively engaged in discussions with the local agent for e-EPICOR to resolve outstanding issues related to the functionality of the application. We are also currently developing more detailed costings but estimate the cost of implementing the system to be in the vicinity of \$250K - \$300K, excluding internal staff time. Initial implementation is expected to be completed by the end of June 2006, with a further 6 month period of training of key users to follow. It is expected that initial capital funding of \$80K - \$100K will need to be provided during 2005 with the balance of the investment to be incurred during 2006. Once completed, the cost of the new FMIS system will have to be amortised over 3 years in line with CGIAR guidelines, therefore potentially increasing administrative operating costs by approximately \$100K/year during the initial period of this business plan.

Once the new FMIS is installed, it is expected that many of CIMMYT's existing business processes will be reviewed to take advantages of opportunities for streamlining offered by functionalities within the new FMIS. The timing and cost of these Business Process Re-engineering (BPR) activities will be absorbed as part of ongoing annual operating costs.

#### Project Management

CIMMYT is currently implementing a PM application that has been developed by CIAT and has been adopted by several CGIAR centers.

We expect that this application will require ongoing development, once we have implemented the basic operating application, however we will not attempt to do this on a stand-alone basis. Discussions are currently underway to start an active development consortium across the various Centers that are currently active users of this application so that future development costs can be shared and can be based on needs identified by a broad group of Centers.

We expect to cover any development costs through our annual budget and will not provide any specific budget funding for this application during the life of the business plan. Operating costs of this application will be covered by existing budget allocations.

#### Human Resource Information System

CIMMYT also invested in a new HRIS application a number of years ago however, as with the FMIS, this was never properly implemented. A priority task for HR in 2005 has been to move to the full implementation of this HRIS application for all Mexican-based staff. Substantial progress has been made and this activity will be completed by the end of 2005, thereby providing significantly improved financial and management information covering approximately 80% of all our current staff.

Ongoing problems relating to the management of information relating to internationally recruited staff (IRS) and regionally based locally recruited staff (LRS) will be addressed during late 2005 and the initial half of 2006. At this point in time, we are working with external consultants to identify appropriate applications and revised business processes that need to be implemented to enhance the effectiveness of our HR practices with respect to IRS/LRS. It is expected that the cost of any system upgrades arising from this review can be absorbed within our 2005/2006 capital expenditure budget.

Further, long-term investments in HRIS should follow the finalization of the new FMIS so that HRIS and FMIS form an integrated, broad based MIS system. The capital investment required for these developments will be built into the annual capital plan and is not expected to be material enough to distort the planned annual capital expenditure budget.

### **(6) Development of a global maize breeding strategy**

CIMMYT's maize research engages farmers in germplasm improvement and research most important to resource-poor farmers in Africa, Asia and Latin America and not targeted by the private maize breeding sector. In most instances, the targets are stress-prone environments where farmers cannot afford or access inputs such as irrigation, fertilizer, lime or pesticides. Future efforts by CIMMYT towards maize germplasm improvement will include genotype by environment analysis and stakeholder consultations on trait priorities for maize. This approach is expected to highlight significant differences for breeding goals between major maize adaptation

zones (lowlands, mid-altitude/ sub-tropical, and highlands) and the role of maize across different regions of the world. As a result, maize breeding will comprise a decentralized but coordinated germplasm improvement approach with scientists located in Africa, Asia and Latin America, focusing on the most important mega-environments world wide, where there is a prevalence of resource-poor farmers. CIMMYT's success in supporting resource-poor farmers will assist them to move into more commercially oriented farming systems.

#### **(7) Staff morale**

CIMMYT is an organization undergoing a very substantial change and evolution; inevitably this has led to feelings of frustration and uncertainty on the part of staff. During the past three (3) years there has been a larger than usual staff turnover due to involuntary terminations and staff departures for other reasons related to career development and retirement. Prior to this time, CIMMYT had experienced very stable employment for all staff, IRS and NRS, with an average tenure across all staff of at least twelve (12) years. The management of CIMMYT recognises that staff morale is an extremely important issue however there is no sustainable 'quick fix'. It is expected that the business plan will provide focus to the work of all staff and, together with a solid financial platform, should provide the assurances that staff seek as they get on with their job. It should be recognised however that conditions in the workplace are changing globally and there is still much to be done to improve personnel policies and procedures to bring them into line with the employment conditions necessary in today's environment, including introduction of a One Staff policy.

## Implementation of CIMMYT 5<sup>th</sup> EPMR recommendations

Recommendation	CIMMYT implementation plan	Status as of November 2005
<p>1) <i>The Panel recommends that management and programme directors undertake a much more rigorous process to define goals for the new strategy that provide a framework within which to organize projects and activities and against which progress in meeting the goals can be measured. In addition to strengthening the implementation of the new strategy, the process will enable the programme directors as a team to identify a set of goals that are congruent across the Centre.</i></p>	<p>CIMMYT agrees with the recommendation and has developed institutional goals for the new strategy (outlined in summary form in the MTP Overview) along with very clear indications of priorities within programs and balance between programs (refer to the institutional priorities table).</p>	<p>Recommendation is now encapsulated by CIMMYT Business Plan 2006-2010, and was considered by the Board of Trustees in November 2005, and due to start implementation in early 2006</p>
<p>2) <i>The Panel recommends that CIMMYT develop a business strategic plan that will support the successful implementation of the new strategy in the face of a dynamic financial environment.</i></p>	<p>CIMMYT agrees with the recommendation and will develop a business plan that operationalizes the “Seeds of Innovation” vision with clearly stated program goals, milestones, deliverables, focus and balance. The document will also show clear linkages between the setting of institution and program goals, resource mobilization and program budgets. This exercise is also very closely linked to the development of the current MTP (2006-2008) and attendant financing and resource mobilization plans. The business plan will be tabled for CIMMYT BOT approval at its next meeting, November '05</p>	<p>CIMMYT Business Plan 2005-2010 will be presented in the form of a final draft at AGM '05 at Marrakech</p>
<p>3) <i>The Panel recommends that CIMMYT management and board undertake a mid-term review in 2007 focused on the implementation of the new strategy, the efficacy of CIMMYT's</i></p>	<p>CIMMYT agrees with the recommendation and will work with the CGIAR on the review to be held May/June '06.</p>	<p>Dates of the review have not yet been finalized but are planned tentatively for June 2006</p>

Recommendation	CIMMYT implementation plan	Status as of November 2005
<i>reorganization and the impact of financial capacity on CIMMYT's programmes and operations.</i>		
4) <i>To facilitate the establishment of a multidisciplinary approach to conducting ex ante impact studies, the Panel recommends that increased integration through time allocation be secured between ITA staff and non-social scientists in the other programmes.</i>	<i>CIMMYT agrees with the recommendation and will review staff time allocations during 2005. Furthermore, an impacts framework workshop was held in May '05 with the participation of scientists from all programs. A second workshop on targeting, to be held July/August '05, will focus on plans for multi-disciplinary ex-ante impact assessment.</i>	<i>Integration of research time allocation is being secured for joint research programs within all CIMMYT programs; e.g. May 2005 impact assessment workshop held; August 2005 priority setting and targeting workshop held</i>
5) <i>The Panel recommends that ITA, in cooperation with the ecoregional programmes, collect data on the variables that explain the heterogeneity of the existing production functions and thus, of yields (both potential and actual) that express differences attributable to productivity gaps within the same agroecological region, due to constraints that limit the adoption of improved technology.</i>	<i>CIMMYT agrees with the recommendation and during 2005 will start the syntheses to construct the spatial meta knowledge of impact pathways, in partnership between the ITA Program and the regional programs. Activities will commence in two macro-systems: maize mixed farming systems in Sub-Saharan Africa; and, rice-wheat farming systems across Pakistan and Bangladesh.</i>	<i>Activity is underway in rice-wheat farming systems in India prior to extending into Pakistan and Bangladesh in 2006; and in maize mixed farming systems in eastern and southern Africa in 2007</i>
6) <i>The Panel recommends that ITA initiate macroeconomic studies by 2006 in close cooperation with IFPRI and other CGIAR Centres. The highest priority should be assigned to sub-Saharan African countries.</i>	<i>CIMMYT agrees with the recommendation insofar as it refers to analyzing sectoral and rural development policy determinants of wheat- and maize-based farming systems improvement and to identify and advocate appropriate policy and institutional responses. Discussions have commenced with IFPRI on cooperation, with key meetings scheduled for May and June '05.</i>	<i>Discussions in IFPRI headquarters and with its ISNAR division identified joint activities and IFPRI participated in CIMMYT's impact assessment workshop (October 2005) with the view to defining maize and wheat components of IFPRI's IMPACT model</i>
7) <i>The Panel recommends that maize research in CIMMYT identify the high priority Marginal</i>	<i>CIMMYT accepts the recommendation and has addressed the issue within the new MTP, consistent with CGIAR system priorities 2 and 5. The African Livelihoods Program</i>	<i>A seed system specialist has been hired in March 2005 to strengthen NARS, small and emerging entrepreneurs and NGOs to more effectively deliver improved maize cultivars to</i>

Recommendation	CIMMYT implementation plan	Status as of November 2005
<p><i>Maize Production Areas (MMPAs) in each mega-environment. Based on such MMPAs, a seed delivery system for improved cultivars should be developed jointly with partners as a vehicle to make CIMMYT's upstream maize research results available to resource-poor farmers.</i></p>	<p><i>outputs 1 and 4 directly address the recommendation with a new staff member recruited to work with NARS partners on the improvement of seed delivery systems for outlying areas.</i></p>	<p><i>farmers in outlying stress-prone areas. A socio-economist is now focusing on socio-economic aspects of sustainable seed delivery systems, including policy, institutional and grain/seed market research. Due to resource constraints, the focus is on Africa where there is the greatest need for improving sustainable seed delivery but lessons learnt are expected to be applicable to stress environments at the global scale</i></p>
<p>8) The Panel recommends that maize breeding and research efforts in the following areas be intensified:</p> <p>a) Grain quality characteristics of high priority to end users in MMPAs, combined with more systematic research and breeding to reduce mycotoxin contamination on the grain;</p> <p>b) Testing and evaluation of breeding materials directly in the MMPAs, for identification of the best material for release;</p> <p>c) Non-transgenic host plant insect resistance research to speed up the process of</p>	<p>CIMMYT agrees with this recommendation but, notes the need for additional, sustainable resources to ensure that new initiatives have a medium- to longer-term outlook. In the meantime, CIMMYT will explore opportunities for collaborative work in this area with IITA. In addition, CIMMYT will work with partners in various countries to test and promote simple, inexpensive grain storage structures that can reduce the deterioration of grain quality during on-farm storage.</p> <p>CIMMYT notes this recommendation and observes it is routine procedure for experimental materials to be tested in their target environments. CIMMYT has made very significant progress in MMPAs using farmer participatory "Mother-Baby" trials (&gt;1M ha in southern Africa sown with improved maize using this approach) and acknowledges the recommendation as being a strong endorsement of this approach.</p> <p>CIMMYT notes this recommendation. CIMMYT has invested in host plant resistance work for at least 30 years and considerable progress has been made; however, transgenic</p>	<p>CIMMYT and partners have identified sources of resistance and studied inheritance mechanisms for resistance to ear rots, and mycotoxins. Most effective approaches to reducing mycotoxin contamination of maize grain include the development of maize cultivars with field resistance to mycotoxin causing fungi. In collaboration with advance research institutes, sources for aflatoxin resistance have been identified in several elite CIMMYT maize lines (e.g. CML78, CML176, CML269), and new projects on aflatoxin are under development which will include a range of partners (NARS, IITA, ICRISAT, FAO and ARIs)</p> <p>CIMMYT completed in 2005 an updated mega-environment classification for maize with definition of high priority breeding goals in each mega-environment. This approach facilitates focus on high priority breeding goals and results in more appropriate germplasm in particular for stress environments. At the national level, CIMMYT continues to underline the need for variety testing in the target environment through training of NARS and private sector breeders in the "Mother-Baby Trial" approach</p> <p>While increasing much of our understanding of non-transgenic host plant resistance, research into the basis for non-transgenic host plant resistance continues to highlight the complexity of this trait (polygenic) and invalidates the</p>

Recommendation	CIMMYT implementation plan	Status as of November 2005
<p><i>integration of the highly resistant CIMMYT germplasm into new varieties;</i></p> <p>d) <i>Application of fast track breeding techniques (doubled haploid, MAS, NIR techniques) in all maize breeding activities in CIMMYT;</i></p> <p>e) <i>Acquisition, storage and management of maize breeding data to eliminate the current back-log.</i></p>	<p><i>approaches to insect resistance are increasingly providing significant technical gains. We will continue to work on an integrated pest management strategy that is reflected in a number of ongoing projects. The current emphasis is to improve the agronomic performance of our best insect resistant sources, thereby accelerating their use in breeding programs.</i></p> <p><i>CIMMYT partially agrees with this recommendation, as the value of these technologies should be assessed on a case-by-case basis. The use of double haploids in maize is a relatively new technique and its utility for marginal and low-input environments is yet to be proven. MAS becomes feasible only when several traits may be selected at once and both double haploids and NIR require considerable start-up work prior to their routine use. Efforts will be made to develop capacity in partnership with ARI collaborators.</i></p> <p><i>CIMMYT agrees with this recommendation and notes that decisions have already been made to allocate more resources to the acquisition, storage, and management of maize breeding data. During 2005, \$165,000 of additional funding has been allocated to bioinformatics.</i></p>	<p><i>use of fast-track approaches such as marker-assisted selection (MAS). Field screening under artificial infestation remains the most efficient approach to improving non-transgenic host plant resistance and is implemented by CIMMYT in strategic germplasm improvement targeted at the mid-altitudes in Africa and the lowland tropics at large</i></p> <p><i>CIMMYT is currently recruiting a maize molecular breeder who will assist maize breeders to make greater and efficient use of MAS. We have begun investigating the implementation of doubled haploids in our maize breeding, but important technical (e.g. availability of tropically-adapted inducer(s), and safe disposal options for colchicine) and financial obstacles must be overcome, and it is not yet apparent whether this technology will be suitable to our breeding programs. Greater use of NIR techniques is desirable, and we look forward to investigating options as funds become available</i></p> <p><i>Work is very much in progress and should result in a significant amount of maize breeding data from Mexico- and Africa-based locations entered into data bases by the end of 2005. An existing data entry tool has been upgraded for faster entry of past data. This activity will be integrated into an ICIS-based system under the IRRI-CIMMYT Alliance's CRIL (Crop Research Informatics Lab) for improved integration of data across sources, disciplines and crops</i></p>
<p>9) <i>The Panel recommends that:</i></p> <p>a) <i>Crop management research in (the) TES (Program) in the regions be strengthened by allocating NRM (Crop and Resource Management) staff time from other programmes, particularly IAP, to TES;</i></p> <p>b) <i>CIMMYT, TES in particular,</i></p>	<p><i>CIMMYT agrees with the recommendation and notes that there are at least two avenues to be pursued: a) additional financial resources for the TES Program; and b) increasing the overall staffing and cross program assignments of crop and resource management scientists generally. The recommendation will be implemented as and when extra resources become available.</i></p> <p><i>CIMMYT agrees in principle with the recommendation. We</i></p>	<p><i>Two relevant initiatives are underway: 1) the IRRI-CIMMYT alliance contemplates a joint program for intensive systems in Asia, and 2) funding is being sought for collaborative work in India investigating NRM options for maize production</i></p> <p><i>1) the IRRI-CIMMYT alliance contemplates a joint program</i></p>

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<p>seek collaboration with other CGIAR Centres in the region, including shared appointments of agronomists and other natural resources specialists;</p> <p>c) The Crop and Resource Management Group, TES and other ecoregional programmes enhance strategic research on natural resource management, particularly for improved water and nutrient use efficiency.</p>	<p>will follow up on some initial discussions that have already been held with three other centers and also on emerging collaboration among centers within the Water and Food Challenge Program. Additional resources are needed to fully address this recommendation.</p> <p>CIMMYT agrees with the recommendation. It is hoped to emphasize strategic research in future projects with appropriate funding.</p>	<p>on intensive systems in Asia, and 2) funding is being sought to link a maize component (in eastern and southern India) to the rice-wheat consortium currently working mainly in northern India</p> <p>This is currently beyond our financial and human resource possibilities. As with the above two points, this would likely be a component of a joint IRRI-CIMMYT program on intensive agroecosystems in Asia</p>
<p>10) The Panel recommends that the IAP breeding teams work closely with crop management and social science groups to develop cultivars that are suitable for conservation agriculture, use water efficiently and are resistant to storage losses.</p>	<p>CIMMYT notes the recommendation and observes that the plant breeding programs in both maize and wheat, in recent years, have aimed at the development of germplasm with an emphasis on input use efficiency (water) and resistance to storage losses (maize) and the development of materials suited to conservation agriculture. The breeding programs in Mexico run parallel selection programs under conservation agriculture and conventional conditions.</p>	<p>This remains as an ongoing activity for the breeding programs as noted in the crop strategy and ensuing project portfolio included in CIMMYT Business Plan 2006-2010</p>
<p>11) The Panel recommends that IAP undertake long term experiments to evaluate cropping system sustainability with the results being fully utilized for strategic research as well as for demonstration purposes.</p>	<p>CIMMYT agrees with the recommendation insofar as it relates to long-term trials conducted on CIMMYT's experiment stations in Mexico and notes that trials over the past 10 years in Mexico have provided an excellent platform for strategic research and demonstration. In regional locations, CIMMYT collaborates with research partners to effectively design, manage and utilize long-term trials.</p>	<p>Journal articles became available after the EPMP that analyze conservation agriculture in its version of permanent bed planting under zero-tillage with crop residue retention both in irrigated and rainfed systems. The results showed the positive effects of zero tillage seeding systems, crop rotation and crop residue retention over twelve years. The findings also support that residue retention with zero tillage leads to an increase in total soil organic carbon although increases in wheat grain yield were rather small</p>
<p>12) The Panel recommends that IAP increase its research in maize cropping systems and their</p>	<p>CIMMYT agrees with the recommendation and we will focus attention on the maize producing regions of Asia where demand is increasing at the fastest rate.</p>	<p>CIMMYT and IRRI jointly organized a stakeholder consultation in Beijing to discuss rice-maize systems and important research topics to enhance their productivity and</p>

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<i>development.</i>		<i>sustainability. If funded, the above-mentioned proposal (see 9a) to increase research on resource-conserving maize production systems in India will also address this recommendation</i>
13) <i>The Panel recommends that the data acquisition, data management and genebank user interface be upgraded in the CIMMYT genebank for both wheat and maize as a matter of urgency.</i>	<i>CIMMYT agrees with the recommendation and notes that significant steps are already underway through several different system-wide initiatives to develop a range of integrated modules for fully computerized data acquisition, genebank management, germplasm evaluation and database query across both crops. Additional funding has been allocated to the genebank in '05.</i>	<i>First steps were initiated in 2005 under the supervision of a new specialist staff using special allocation funds from the World Bank genebank upgrade project and components of a special allocation from CIMMYT unrestricted core budget under the management of the Crop Research Informatics Committee (CRISCO). This will be greatly augmented during 2006-2008 under the IRRI-CIMMYT Alliance's CRIL (Crop Research Informatics Lab) using a new unrestricted core budget allocation during 2005-2006, which will use an ICIS-based information management system for integrating all available crop-related data (passport, phenotype, pedigree and genotype data etc) from genebank accessions to elite breeding lines for maize, wheat and rice</i>
14) <i>The Panel recommends that:</i> a) <i>Training coordinator position be relocated to an independent Unit reporting directly to the DDG-R;</i>  b) <i>The Training Unit working together with programme directors develop a priority setting tool, both thematic and geographical. The resulting priorities should then be used to allocate resource to the programmes;</i>  c) <i>CIMMYT develop innovative alternative funding schemes for training</i>	<i>CIMMYT notes the recommendation but will retain the training coordinator position in ITA for a number of strategic reasons. Performance and effectiveness of the position will be reviewed in December 2006.</i>  <i>CIMMYT agrees in principle with the recommendation for training purposes. During 2005 a capacity building strategy will be formulated in consultation with all program directors. During July/August '05 at a targeting workshop, mechanisms for priority setting and targeting for training will be developed.</i>  <i>CIMMYT agrees in principle with the recommendation and during 2005 has initiated discussions with public and private sector organizations to explore possibilities for new funding of training.</i>	<i>No further action.</i>  <i>Capacity building drafted and to be finalized in March 2006 with inputs from other program directors.</i>  <i>A number of avenues are being investigated for partnerships in this area; a formal proposal was submitted to a donor agency for Mexican-based capacity building activity and other options are being explored with private sector for research fellowships</i>

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<p>15) To help ensure that CIMMYT builds and sustains high functioning Boards, the Panel recommends the establishment of a governance committee with responsibility for a range of activities essential to Board effectiveness, including defining more clearly the role of the board, developing a more strategic process for identifying and recruiting board members, assessing board performance on a formal basis, evaluating the performance of members before re-election, recommending improvements to board practice, such as meeting design and preparation, information flow and communication, and developing an orientation and ongoing education program for members to enhance their performance</p>	<p>The CIMMYT Board had a one-day workshop on governance at its March 2005 meeting and agreed to reduce its size to no more than seven appointed members while maintaining the appropriate mix of skills, and to enhance the roles of the Audit and Finance and Administration Committees as agents of the Board. Rather than create a separate governance committee, CIMMYT intends to engage a specialist consultant to help the Board and its committees clarify their roles and put in place a more strategic process for identifying and recruiting board members, assessing board performance on a formal basis, and evaluating the performance of members before re-election. The consultant will also provide advice on meeting design and preparation, information flow and communication, and will work with the Board to develop an orientation and ongoing education program for trustees. It is anticipated that the consultant will also be engaged to review the effectiveness of the Board's processes, in the first instance on an annual basis. In future it is intended that the Board as a whole will explicitly address governance functions in lieu of a governance committee.</p>	<p>New governance model discussed at the March BOT meeting; endorsed at the November meeting and to be shared during AGM05 in Marrakech by incoming BOT chair</p>
<p>16) The Panel recommends that a dedicated staff person in the DG's office be identified to serve as the Board Secretary. This position should have sufficient status within the organization, clear responsibility and also adequate time to provide support and coordination for the board.</p>	<p>CIMMYT agrees with the recommendation and has already (effective March 2005) implemented this recommendation.</p>	<p>No further action.</p>
<p>17) The Panel recommends that management review the staff survey results in detail with special attention to staff morale,</p>	<p>CIMMYT agrees with the recommendation and will implement a range of measures over the next 12 months aimed at: communicating policies, including the OneStaff concept; simplifying our management system and refining</p>	<p>There is no quick fix to this matter and management has established a series of mechanisms for dialog with staff at various levels. A variety of morale building actions such as fund raising, implementation of an exciting business plan</p>

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<p><i>communication of policies, clarity of goals, performance recognition, and staff evaluation, and take appropriate corrective action as a matter of urgency.</i></p>	<p><i>program and institutional goals; and, demonstrating a clear link between performance evaluation, promotion and professional development.</i></p>	<p><i>(including ensuing recruitment of staff) and social events are being implemented. Progress will be monitored during 2006</i></p>
<p>18) <i>The Panel recommends that management give priority to reforming financial management at the Centre, including budget, staffing and related systems, with highest priority given to the development of a computerized financial management system that provides real on-time financial information to users; and urgently develop (in consultation with programme staff) a transparent resource allocation process consistent with needs of the matrix management system.</i></p>	<p><i>CIMMYT agrees with the recommendation and has taken the following steps:</i></p> <ul style="list-style-type: none"> <li><i>• The first phase of a human resources system (Eslabon) has been implemented (March '05) and the complete staff database will be finalized by the end of June '05.</i></li> <li><i>• We are currently implementing the project manager application of CIAT's system and plan to have an effective project management system in place during the 3rd quarter of '05.</i></li> <li><i>• Initial investigations have been made into a replacement financial management system</i></li> </ul>	<ul style="list-style-type: none"> <li><i>• The implementation of the second phase of Eslabon has been delayed due to the need to resolve technical problems relating to the adaptation of the system database to cater for non-Mexical staff. This will be resolved and the application fully implemented by the end of the 2005</i></li> <li><i>• The Project manager application has been installed and the initial project databases have been populated. The Projects Office, which has overall responsibility for project management at CIMMYT, is in the process of reviewing and cleaning the data and will ensure its full implementation during the first quarter of 2006</i></li> <li><i>• Negotiations are currently underway with a software supplier to determine implementation costs for the e-EPICOR FMIS. A decision is expected by mid-November with implementation to commence during the first quarter of 2006</i></li> </ul>
<p>19) <i>The Panel recommends that management carefully examine the correctness of the net assets (equity) balance for 2004 attributable to the increase in 2003 (of approximately US\$ 2.0 million) from fixed assets write-off and revaluation.</i></p>	<p><i>CIMMYT notes this recommendation. Our external auditors have confirmed that, while the detail that was presented in the 2003 financial statements was less than clear, the treatment was correct.</i></p>	<p><i>No further action.</i></p>
<p>20) <i>The Panel recommends that the Board and management develop a set of financial indicators for measuring the Centre financial</i></p>	<p><i>CIMMYT agrees with the recommendation. We have discussed and agreed upon a set of financial indicators at the March '05 Board meeting. These indicators are based on those developed by the CGIAR.</i></p>	<p><i>Draft indicators were circulated to BOT members and agreed upon at the November 2005 meeting to start implementation in early 2006</i></p>

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<p><i>performance and health. The indicators should supplement those developed by the CGIAR System in close consultation with CGIAR Secretariat and Centre Finance Directors.</i></p>		
<p>21) <i>The Panel recommends that a full cost recovery/pricing system for support services be implemented to recover the full costs from projects and users of services. This will reduce the pressure on unrestricted funding and make it available for other high priority activities at the Centre, including building the working capital to the required level.</i></p>	<p><i>CIMMYT agrees with the recommendation and has already implemented changes within the 2005 budget that will lead to full cost recovery from projects and users of services. In addition, a costing template is being developed as part of Project Manager.</i></p>	<p><i>The 2005 budget included provision for full charge out of depreciation and information-communication technology (ICT) to projects. A project costing template which will ensure improved cost recovery for all restricted projects has been developed and will be enforced for all proposal submissions as from the start of 2006</i></p>
<p>22) <i>The Panel recommends that Board and management:</i></p> <ul style="list-style-type: none"> <li><i>a) Make substantial efforts and allocate adequate time for the careful review of the external audit (at headquarters and regional operations), management letters and the audited financial statements with the notes;</i></li> <li><i>b) Carefully review the annual audit plans and scope of external audit for headquarters and regional operations;</i></li> <li><i>c) Formally assess annually the performance of the external auditors before deciding on their re-appointment.</i></li> </ul>	<p><i>CIMMYT agrees and will commit substantial time and effort for the careful review of external audit reports for headquarters and regional offices. The BOT Audit Committee annually receives audit plans, and will review the external audit scope to reflect management's and the Board's assessment of risks, taking into account the changing nature of the Center's programs at headquarters and in the regions. The Audit Committee will develop and implement a formal plan for assessment of the External Auditors prior to renewal or selection of new auditors.</i></p>	<ul style="list-style-type: none"> <li><i>a) Current management has always been fully engaged with the external auditors with respect to the annual audit planning process. Pre-audit planning meetings have been held in advance of commencement of both the 2004 and 2005 audits. The engagement letter for the 2005 financial year is currently being developed following this year's audit planning meeting</i></li> <li><i>b) The management letter will be circulated to the audit committee of the Board of Trustees once a draft has been received</i></li> <li><i>c) A process for the formal evaluation of external auditors is currently being developed by the Audit Committee of CIMMYT's Board of Trustees</i></li> </ul>

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<p>23) <i>The Panel recommends that Board and management review the scope of internal audit work and the capabilities of the senior internal auditor and make the required changes to strengthen this important function.</i></p>	<p><i>The CIMMYT Board and Management agree that CIMMYT must have a strong internal audit function. The scope and capabilities of the internal audit function will continue to be under review and all necessary and appropriate actions will be taken during 2005.</i></p>	<p><i>The recruitment of an associated director for the internal audit of the CGIAR with specific responsibilities for the Americas is currently underway and is expected before the end of 2005. It is planned the associated director to work closely with CIMMYT's internal auditor to improve the quality and relevance of the internal audit services of the Center.</i></p>