

Agriculture Sector Linkages Program – goals, priorities and activities

Program goals

The purpose of the Agriculture Sector Linkages Program (ASLP) is to build linkages between the agriculture sectors of Australia and Pakistan. The ASLP, with a total budget allocation of 6.6M AUD over 4 years, has been structured into four components:

- 1. Market Linkages*
- 2. Academic Linkages*
- 3. Agriculture*
- 4. Linkages Program Review*

Under a Record of Understanding (RoU) with AusAID, ACIAR has agreed to manage and implement components 3 and 4 above. The main goals of the agriculture linkages component are:

1. To transfer Australian knowledge and expertise to key sectors of Pakistan agribusiness to increase profitability and enhance export potential
2. To contribute to poverty alleviation of small-holder farmers through collaborative research and development
3. To enhance the capacity of the Pakistan research, development and extension system to deliver targeted and practical research outputs to agribusiness and farmers.

Program priorities

In August 2005, an ACIAR delegation visited Pakistan to scope and identify possible ASLP priorities. This was done in close consultation with senior officials of the Ministry for Food, Agriculture and Livestock (MINFAL) and the Pakistan Council for Agricultural Research (PARC). Ministerial input was also obtained from the Minister of Industries, Production and Special Initiatives and the State Minister of Economic Affairs & Statistics, who both provided clear directives on focus and priorities. Input was also sought from a broad cross-section of national and provincial research and extension institutions, the National Rural Support Program and industry bodies (e.g. Dairy Pakistan). Consequently, the priorities of the plan and resultant activities were largely formulated by the Pakistan partners.

A broad range of opportunities were identified through these consultations. Three principles were subsequently used to guide priority setting:

- The need to focus on fewer areas in order to address the complete production and supply to market chain to ensure significant impacts could be obtained during the life of the ASLP
- Select sectors that offered opportunities to alleviate poverty and/or had the potential to generate large income streams from already established linkages
- A comparative advantage for Australia to provide knowledge and expertise.

In consequence, the horticulture and livestock enterprises were identified as the primary focal sectors. At the same time, the need was recognised to also target a number of cross-cutting areas that underpin the long term viability of these agro-enterprises, being the issue of water management and institutional and technical capacity building. The planned monitoring process of the ASLP will revisit these priorities on an annual basis, and other sectors (e.g. fisheries, vegetables) may be added to the ASLP portfolio, once initial impacts have been achieved.

Within the two priority sectors of horticulture and livestock, mango, citrus and dairy production will be addressed initially. The mango and citrus industries are the most important horticultural tree crops, with Pakistan an important global producer and increasingly, an exporter. The dairy sector is one of the world's largest, with Pakistan ranking as 5th largest milk producer; approximately 66% of the milk is from buffalos, and 32% from cows. There is large potential to increase productivity in all three sectors, with dairy offering significant poverty alleviation potential. Specifically, it was agreed to target the following priority topics:

- A. Technical support to increase mango and citrus production, comprising two main aspects:
 - Diagnosis and control of diseases (in particular dieback)
 - Water management/orchard management to increase productivity and reduce input costs
- B. Technical support for the supply chain, value adding, marketing for the mango and citrus enterprises (internal and external market, private & public sectors)
- C. Technical support for the dairy sector to increase individual animal milk production.

Within these three topical areas, it was also agreed to integrate capacity building for the R&D sector to deliver impacts and sustain progress beyond the life of the ASLP and to address the issue of efficient use of water as an enabling technology.

Program activities and projects

To meet the ASLP goals and priorities stated above and to ensure the program delivers early impacts, it is necessary to configure the program into a flexible suite of short, medium and long term activities. These comprise:

- Initial short term scoping studies and constraints analysis
- Agro-enterprise exposure and fact finding trips to Australia
- Technical and scientific workshops
- Tailored training and capacity building packages delivered in Pakistan and in Australia
- 1-3 yr technical intervention and/or research and development projects

It is proposed to structure the program into the following suite of linked activities and projects:

A. Horticulture – mangos

A.1 Technical support to increase mango production

- A.1.1 Short term consultancy to rapidly diagnose mango dieback and malformation
- A.1.2 Technical workshop on mango diseases, tree/orchard agronomy, and irrigation and drainage management
- A.1.3 Development and delivery of training modules on participatory research and extension methodologies in mango production
- A.1.4 R & D project to develop and implement mango disease management strategies and certified nursery programs
- A.1.5 R & D project to improve mango production through improved orchard and water management

A.2 Technical support for mango enterprises to optimise supply chain, value adding and marketing

- A.2.1 Short term scoping studies and mango supply chain analysis
- A.2.2 Mango sector exposure visit by Pakistani technical experts and agribusiness entrepreneurs to Australia
- A.2.3 Development and delivery of training modules on post-harvest management
- A.2.4 R & D project to develop efficient mango supply chains and improve value adding

B. Horticulture - citrus

B.1. Technical support to increase citrus production

- B.1.1 Short term visits by Australian citrus experts to Pakistan
- B.1.2 Technical workshop on citrus diseases, tree/orchard agronomy and irrigation and drainage management
- B.1.3 Citrus sector exposure visit by Pakistani technical experts and agribusiness entrepreneurs to Australia
- B.1.4 Development and delivery of training modules on participatory research and extension methodologies in citrus production
- B.1.5 R & D project to improve citrus production through improved disease, certified nursery, orchard and water management.

C. Livestock - dairy

C.1. Technical support to increase individual animal milk production

- C.1.1 Scoping study and constraints analysis to identify critical R,D & E investment priorities in dairy production
- C.1.2 R & D project to develop and implement improved animal husbandry and nutrition for increased milk production
- C.1.3 Development and delivery of training modules on participatory research and extension activities in dairy production
- C.1.4 Dairy sector exposure visit by Pakistani technical experts and agribusiness entrepreneurs to Australia
- C.1.5 Sourcing and transfer of animal germplasm (Australian Friesian Sahiwal) and drought and salt-tolerant forage germplasm from Australia to Pakistan
- C.1.6 Evaluation of germplasm introduced from Australia

The main purpose of the initial activities such as expert visits, workshops and scoping studies (A.1.1, A.1.2, A.2.1, B.1.1, B.1.2, C.1.1) is to rapidly establish a wide range of institution to institution linkages between Australia and Pakistan. At the same time, information and recommendations arising from these activities will be critical in facilitating the design of the ensuing capacity building activities and R&D projects:

- A.1.1 – to date, the precise disease agents of mango dieback and malformation in Pakistan have yet to be diagnosed or confirmed. Knowledge of these is a prerequisite to adequately design and plan for R&D project A.1.4. It is proposed in this case that a targeted consultancy is the most appropriate approach to rapidly acquire this information.

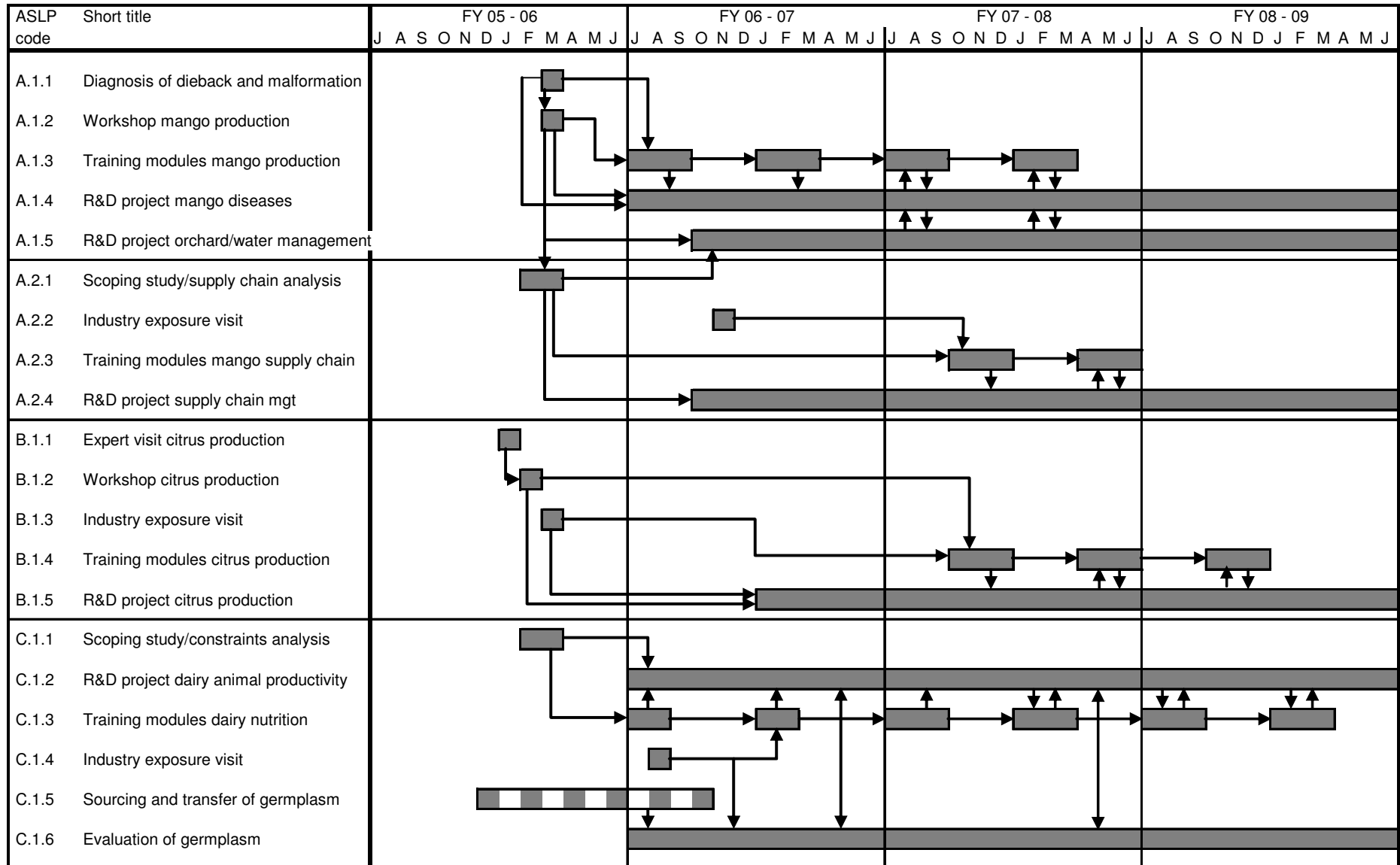
- A.1.2, B.1.2 – technical workshops provide an efficient means of bringing together leading Australian and Pakistani scientists from many institutions to quickly foster institutional linkages. Concurrently, these workshops will provide the technical base from which to identify key research gaps, to optimise matching of Australian and Pakistani expertise, and to help prioritise ensuing investments into R&D projects (A.1.4, A.1.5, B.1.5).
- A.2.1, C.1.1 – scoping studies using a supply chain analysis or a constraints analysis approach have been chosen as the preferred approach instead of workshops where it is likely that major constraints are not necessarily of technical nature, but of socio-economic, institutional or policy nature. Investing R&D funds into technical interventions where the main bottlenecks to increased economic growth and income generation are outside the technical domain is usually not very effective. Hence, in laying the groundwork for identifying and designing ASLP R&D projects with the objective of obtaining high returns from the optimisation of supply chains and value adding of mangos, and to increase dairy productivity, it is necessary to conduct a more in depth socio-economic analysis than what could be achieved in a workshop. A key output from these studies is expected to be the development of appropriately targeted project proposals for R&D projects A.2.4 and C.1.2.\
- Whilst at this point in time, five potential R&D projects are being proposed, it is important to note that the outcomes of the initial activities will determine to what extent the envisaged projects will be designed as individual projects, or whether there is merit in combining some of the projects (e.g. collapsing A.1.4 and A.1.5 into one project; extending project A.1.5 to include orchard and water management issues of citrus).

Delivery of research results can be vastly enhanced if final end-users of project outcomes (e.g. farmers, processors, policy makers) are integral to the identification of priorities, planning and execution of R&D projects. Such participatory research and extension approaches are not yet very widespread in Pakistan's research and extension institutions. At the same time, linkages and integration with other major Government supported development initiatives such as the National Rural Support Program, the Pakistan Horticulture Development & Export Board and Dairy Pakistan, will be critical and a necessary feature of all activities. Accordingly, to ensure maximum benefit can be obtained from the ASLP, a significant effort will be placed into developing and delivering tailor-made training and capacity building modules, with context specific training mainly being designed around the individual R&D projects. Consequently, a series of training interventions customised for the mango (A.1.3, A.2.3), citrus (B.1.4) and dairy (C.1.3) sectors, respectively, is proposed rather than developing one large, aggregated training package. These different training modules need to be synchronised with the R&D projects so as to enable the trainees to be associated with and benefit from the project experience. This approach also enables a wider spreading across very different sector groups to maximise the formation of linkages. It is envisaged that the training modules will entail capacity building in Pakistan, as well as selected training in new research methodologies in Australia.

An overview of the timelines planned and how the various activities flow into each other is provided in the flow chart on the following page, while an overview of potential sources of Australian expertise is provided in Appendix III.

A detailed log frame that relates the activities and their outputs to the ASLP goals is provided in Appendix IV. As the program firms up and the actual activities and R&D projects are implemented, outputs and performance indicators will be updated with more quantitative measures and communicated through an annual operational plan to be drawn up each financial year by ACIAR.

ASLP Flowchart



Program benefits

Benefits of the ASLP can be grouped into more immediate benefits achieved during the life of the program, and potential, longer term benefits. Immediate benefits include:

- Significant injection of additional knowledge, training and research resources into the horticulture and dairy sectors
- Rapid identification of key technical and institutional constraints holding back gains in productivity, resulting in high potential returns from R &D investments
- A greater ability of the Pakistan national agricultural research and extension system (NARES) to conduct research that delivers practical outcomes on the ground.

The latter benefit is potentially the most significant; however, it is also very ambitious, and the extent to which it can be placed on a long-term sustainable basis also depends on changes to incentive structures and institutional reform within the Pakistan NARES, which is beyond the scope of the ASLP. Nonetheless, it is hoped that the intensification of linkages between Australian and Pakistan research and development institutions will provide ongoing impetus to such reforms well beyond the life of the ASLP.

It is important to note that while a number of substantive research projects will be carried out under the auspices of the ASLP, some of them are unlikely to deliver significant impacts during the life of the ASLP, given the nature of some of the problems being addressed (e.g. changes to pruning schedules and tree management take several years to flow through to enhanced yields). A significant ongoing extension program will be required to extend the innovations beyond the immediate project, also beyond the scope of the ASLP.

However, despite these limitations, there are likely to be significant longer term benefits that will ultimately contribute to meeting the ASLP goals, such as the development of improved mango, citrus and dairy production systems that lead to an increase in farm profitability, offer more opportunities for rural employment and ultimately, will underpin Pakistan's economic growth. Amongst these, the supply chain and dairy projects may also yield some short term impacts, but the nature and extent of the impacts is still uncertain before a more rigorous constraints analysis has been undertaken.

Budget

The expenditure budget is presented below. Budget allocations are indicative and will progressively be firmed up as the program evolves, in particular once the outputs and recommendations of the various workshops and scoping studies have become available. A contingency fund will be maintained to respond to additional linkage opportunities and any changes to priorities as determined by the Steering Committee.

	FY 05-06	FY 06-07	FY 07-08	FY 08-09	Total
<i>Program activities</i>	754,000	1,483,500	1,538,500	1,054,000	4,830,000
<i>ASLP management costs</i>	36,000	46,500	101,500	46,000	230,000
Total ASLP	790,000	1,530,000	1,640,000	1,100,000	5,060,000