

Note to the BATCo Management BoardResearch & Development1. Co-ordination of Group R&D

Following the structural change in the organisation of R&D in the Group which took effect in April 1985, the key elements that have been set up to ensure the co-ordination of R&D among the CAC R&D centres are:-

- (i) a Group R&D projects database
- (ii) an annual Research Conference
- (iii) specialist technical meetings
- (iv) collaborative research projects.

The Group database has "Group" and "local" projects for all six centres classified by business objective, depth (fundamental, applied, etc.), functional relevance (marketing, production, etc.) and several other parameters. The system carries effort allocation for individual projects, thus enabling effort to be monitored across the Group in relation to agreed priorities. A project progress reporting system is currently being set up as a natural extension of this database.

The Research Conference for 1986 was held in Sydney and had a dual purpose. Part I was a technical meeting to review work aimed at the three important business objectives - Smoke Quality Improvement, Response to Regulatory Authorities and Cost Reduction. Part II was a review of organisation and strategy of Group Research. A similar format will be followed in 1987.

Specialist meetings/workshops during 1986 covered:-

- Flavourist Workshop
- Tobacco Processing
- Chemosensory Research
- Product Development
- Tobacco Biotechnology

and the following are planned for 1987:-

- Analytical Research
- Flavour Workshop
- Product Development (including filters and sidestream)
- Technology Forecasting (including competitive intelligence)
- Southampton Research Review

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Finally, several collaborative projects involving staff exchange have been set up between the various R&D centres. These include a Chemosensory/Aerosol team (B&W, BATCF, BATUKE), various initiatives on tobacco particle size control for better cigarette quality (BATUKE, Wills), and a recent joint-study between B&W and BATUKE on extruded reconstituted tobacco. Staff-interchange is proving to be one of the most effective means we have for co-ordinating the R&D centres.

2. Scientific Research Group.

At the 1985 Research Conference we agreed the need for an advisory group to review all Smoking & Health related papers, with a view to recommending external research that the Group should sponsor. This would comprise Group senior specialists and could call on external consultants as necessary. The concept of international co-ordination in this area is new.

The Group has been set up under Dr. R. E. Thornton and has held two meetings. The first meeting was largely to agree terms of reference; the second meeting addressed the subject of nicotine and concluded that there are four areas which need to be pursued. Nicotine metabolism, influence of nicotine on human behaviour, role of nicotine in Parkinson's disease and Alzheimer's disease and work on nicotine receptor mechanism will be explored from the standpoint of external contract research.

The next meeting will consider the key issue of "Other Noxa" (minor smoke components of interest to regulatory bodies). The aim is to prioritise internal research work on reduction of such components and to agree what external work needs to be pursued. The role of such compounds in relation to disease mechanisms will be considered.

3. Group Strategic Research

The integration of Southampton R&D into BATUKE is now complete. Projects are for the most part sponsored by BATUKE, BATCo companies or BATCo itself. There remains a group of projects which are strictly viewed as Group strategic rather than of particular importance to BATUKE or BATCo. It has been agreed by the Tobacco Strategy Review Team that these activities (cost £2 mn.) will in future be funded by CAC countries (excluding Brazil), and that accountability for the projects to the Research Conference will be given to Dr. R. Baker of BATUKE R&D. A key project of this fundamental research programme is the study of smoke formation (both the aerosol - a potential source of taste modification - and the individual components, many of which attract the interest of regulatory bodies). Other Group strategic work undertaken by Southampton relates to sidestream smoke and its fate under various ambient conditions, also an area of increasing concern to regulatory authorities.

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Brazil also has projects which are Group strategic rather than specifically requested by Souza Cruz. These are in the area of tobacco processing with a strong thrust towards improved subjective smoke character through processing modifications, and in fundamental leaf science.

4. Priorities for Research

Currently, focussing only on those projects carried out in the six R&D Centres that have relevance to the Group as a whole, the allocation of effort against business objectives is:

Smoke quality improvement	48.6%
Cigarette physical properties	8.9%
Control of smoke components	8.4%
Cost reduction	7.9%
Social concern	5.1%
Others	15.7%

The effort on smoke quality improvement reflects the general Group pressure to achieve better smoking products. B&W have the highest effort and are making good progress with their novel tobacco grades, use of ammonia technology in relation to reconstituted sheet, and new casings. The use of selective filters to remove 'harshness' factors is looking interesting. Both BATCF and Souza Cruz have created novel taste modifiers which are now in use on commercial brands.

The Research Conference expressed concern that we ensure sufficient resource is available for 'seed-corn' ideas for these objectives and that, in particular, we give thought to increasing effort aimed at reducing social concern against smoking. Ideas at this stage are by no means clear.

Plant biotechnology opens an important area of new opportunity in relation to basic tobacco properties and cigarette design. So far, B&W have taken the lead with tobacco and are developing, with a biotechnology company, cultivars with high nicotine/tar. They are also exploring introduction of key flavour notes into commercial tobacco. A coordinated Group approach has now been established with G.A. Read acting as coordinator. Souza Cruz, through Bioplanta, and Imperial, through a contact with Agriculture Canada, will certainly be involved.

5. Product Development Concepts

The Product Development Steering Group (PDSG), comprising senior Marketing and Research representatives of BATCo and BATUKE, is responsible for identifying new product concepts and for pursuing those considered to have potential importance for the BATCo companies, but hopefully, also for the Group. Under the auspices of this Group a questionnaire has just been circulated to BATCo companies in order to identify their areas of interest for the kind of product development that calls for facilities outside of the range available to them locally.

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Uniquely on this occasion examples of product development projects being pursued in all six R&D centres are included to stimulate ideas. As a means of protecting confidentiality, projects are confined to "product" rather than "brand" developments, and the Research Co-ordinator will forge contacts between BATCo companies and the appropriate R&D centre rather than attempt to distribute extensive project listings to the 20 or so BATCo companies concerned.

6. R&D Technical Support to BATCo Companies

Whilst BATUKE R&D is the major source of technical support to BATCo companies, there are many examples where other R&D centres in the Group are already giving technical assistance to BATCo companies.

(1) BATUKE R&D

Technical support to BATCo companies by BATUKE R&D in 1986 has been extensive amounting to some 25% total effort. Items include short-term product development; special chemical analyses and routine cross-checks; product, laboratory and hygiene audits; technology transfer seminars and specific process development work. Additionally, process development projects are carried out directly for BATCo, with PPD as the sponsor.

The following examples illustrate how the R&D Centre is adapting its activities in line with the concept of practical application implicit in the 1985 restructuring.

Short term product support work has ranged from advising Argentina on re-designed cigarette papers to produce cost savings, to the development of a new triple (carbon) filter for Venezuela. Elsewhere cost savings have been achieved by identifying more economic tows for filter manufacture for several Operating Companies, e.g. Nigeria, Kenya, Sudan, Pakistan, Finland, etc.

Within BATUKE considerable progress has been made by increasing the level of expanded tobacco (ET) in full-flavour products. Potential negative effects, in terms of tar delivery and puff number maintenance, have been successfully overcome, without affecting the product characteristics, through reformulation of the cigarette paper. Other substantial benefits of this new paper, due to increased thickness and strength of the paper, are a significant reduction in downtime and decreased utilisation of the tobacco even at the same ET level. This paper is now in full-scale production and is already being used on two major BATUKE brands with an expected saving of £500,000 over a full year. Bobbins have also been sent to the appropriate BATCo companies for evaluation, e.g. Malaysia, Singapore.

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BAT Indonesia have commissioned R&D to provide relevant testing to clarify the acceptability of eugenol in smoke. This has called for collaborative work to generate a suitable test cigarette and plans are well ahead for external assessment of the metabolism of eugenol delivered in smoke.

The acquisition by BAT of BASTOS (The Cameroons) has required major activity in the review of raw materials and development of a new product. This product - RED CLUB LEGERE - was successfully launched at the end of October and has been very positively received by the market. In neighbouring Nigeria, a Product and Process Technology Seminar was run in October for delegates from the Cameroons, Ghana, Sierra Leone, Liberia, Zaire and the host country.

BATUKE R&D has completed product audits of Kenya and Zaire. These audits comprise (a) a detailed critique of the Product Development function of the company, and (b) an independent evaluation of the smoking (and physical) properties of the companies' products in comparison with competition. Both audits were well received by General Managers and Territorial Directors and have led to the implementation of specific recommendations.

Key analytical projects include detailed analysis of specific International brands from around the world - Project GLOBE and specific investigations from Operating Companies, e.g. odorous emissions - Finland; spotting problems - Malaysia; and tobacco ageing studies - Canada.

BATUKE R&D have maintained the Inter-laboratory Cross-Check Test, and individual cross-checks with Brazil, Belgium, Cameroons, Mauritius and Panama. The Centre has also been involved in CORESTA and ISO cross-check schemes.

Analytical laboratory training has been arranged for personnel from Hong Kong, Mauritius, Tanzania, Kenya and Indonesia, and Laboratory Audits have been carried out in Pakistan and Venezuela. The latter visit was combined with a hygiene audit and a hygiene seminar for Central/South American countries.

On the process side, a means of stabilising WTS filling volume was devised for BATUKE and is on trial; an automated QC method was transferred to Liverpool and the stem shredding line installed. Small strips add-back was quantified. In sample manufacture 12 major consumer trial samples were produced. Short stems were shredded for seven companies; two are planning use. Moisture meters were calibrated for eight companies. A robust cheap moisture control system was designed for Sri Lanka's GLT.

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The specification of an APEX pilot plant, including use for Wintermans, has been taken to an investment decision stage. Malaysian Tobacco Company poor quality leaf was improved by processing to consumer trial stage.

(ii) Other CAC R&D Centres

The B&W R&D main area of technical support to BATCo is in leaf. Training for representatives of five Central American companies (at North Carolina State University) and of agronomists from Mexico has been organised. There has been collaboration with Spain in agronomic support and in testing of local tobaccos. Two visits were made to Malaysia to assist in Product Development and to review quality of local Burley.

BATCF has worked with a number of BATCo companies in the potential exploitation of German process developments, notably the STS stem drying/expansion process.

Souza Cruz R&D has close connections with Chile and have carried out studies for them in several areas - casing modifications, beetle control, direct menthol addition to tobacco and development of laboratory analytical techniques. Both Venezuela and Argentina have also received technical support from Souza Cruz. The R&D team at Souza Cruz feel capable of giving technical assistance to BATCo in many areas so far unexplored - specific aspects of leaf technology, novel flavours and casings and general industrial technology (effluent treatment).

(iii) Future Plans

Apart from the initiative already taken (through the Questionnaire) of identifying areas of Product Development that BATCo companies support, we also now propose to ask companies to include in their Company Plan their technical support project requirements from R&D. This will enable questions of resource planning and funding for specific projects to be resolved at an early stage.

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ALH/DET  
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