



## **Save British Science Society**

SUPPORTING SCIENCE & THE APPLICATIONS OF SCIENCE

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### **Some issues concerning regulation and control of science in the UK**

SBS memorandum to the Better Regulation Task Force

1. Following attendance at a meeting of the Task Force Science Stakeholders' meeting, SBS is pleased to submit this memorandum on the regulation of science. SBS is a voluntary organisation campaigning for the health of science and technology throughout UK society, and is supported by 1,500 individual members, and some 70 institutional members, including universities, learned societies, venture capitalists, financiers, industrial companies and publishers.

#### ***Definitions***

2. Although the Task Force subgroup is charged with producing a report that deals strictly with individual regulations concerning scientific research, SBS believes that better regulation can only be achieved by taking a broader perspective. In particular, it is essential to look at the regulation of scientific education, the climate that informs implementation of regulation, and the details of who pays for regulation in public sector research.

3. This memorandum does not deal with regulation of research in private companies, partly because it focuses on issues such as how regulation is paid for in the public sector, but essentially because the private sector was well-represented at the Science Stakeholders' meeting on 9 January 2002, and those industrial representatives will be submitting their own written evidence to the Task Force, detailing the specific regulations that may be hampering their progress.

#### ***Some general principles***

4. SBS believes that proper regulation is imperative if scientific research is to progress with the democratic consent of the people. With that in mind, it is disturbing that 41% of the British public think that science is moving too fast for proper control and regulation.<sup>1</sup>

5. To ensure that as many of the population as possible feel that their voices are heard, SBS believes that there must be mechanisms for

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public feeling to be gauged when setting regulation, not just the views of scientists or those with a direct interest in a particular kind of research.

6. There should, therefore, be an onus on scientists to engage with as wide an audience as possible, so that a broad range of the population both feels informed about what is happening in science, and believes that scientists are moving forward only with the knowledge and consent of the public at large, just as a surgeon requires the informed consent of a patient before operating.

7. In particular, SBS believes that these issues generate a powerful argument for a strong publicly-funded science base, which can offer robust information and debate to the public, without being accused of having commercial or financial interests in the outcome.

### ***Regulation of science in schools***

8. Practical experimentation is an essential part of learning about science. A good science education in school depends both on pupils being allowed the opportunity to conduct their own experiments, and on their being able to watch larger scale demonstrations, where it is inappropriate for individual children to undertake particular procedures (such as adding reactive substances like potassium or sodium to water). Such practical work captures the imagination of children, and can excite them about science.

9. In its report on ***Science and Society***, the House of Lords Select Committee on Science and Technology expressed concern about the decline of practical work in school science classes.<sup>2</sup>

10. In its follow-up report on ***Science in Schools***, the Committee explored further the reasons for this decline, which is believed among much of the scientific community to be largely due to regulation. In fact, only two commonly-used experiments have been formally removed from the curriculum in the past 30 years, both involving benzene, which is a highly dangerous compound.

11. However, the interpretation of Health and Safety regulations is unquestionably hindering the conduct of practical work in schools. In the words of the House of Lords Committee, “health and safety regulations, if they do not actually ban experiments, nonetheless affect adversely the way in which they can be carried out”.<sup>3</sup>

12. In its response to the Committee’s original report, the government denied that regulation was preventing the conducting of practical classes in schools. While this may have been strictly accurate, it was not considered a helpful comment by members of the House of Lords Committee.

***Paying for regulation in the public science base***

13. Public funding for the science base comes through two sources, namely

- the Higher Education Funding Councils, which make allocations to individual universities based on the volume and quality of research that they perform. Funding Council money is used “at the institutions’ discretion,” to pay for infrastructure, salaries of academic and technical staff, and to provide a “well-found laboratory”.
- the Research Councils, which give grants for specific projects and whose resources are earmarked in advance for detailed, named purposes. These projects are generally carried out in the “well-found laboratories” provided by the Funding Council investment. The Research Councils also fund some Research Institutes, which have a different funding structure and are not covered by this memorandum.

14. As part of the process of creating a well-found laboratory, the implementation of regulations in university departments is, in general, supposed to be paid for from their Funding Council allocations. This is true both of the direct costs of installing safety equipment and operating procedures, and of the indirect costs of employing competent technical staff and maintaining appropriate levels of training.

15. In the past 15 years, investment by the Funding Councils has not kept pace with the growth in university research that has been funded by the Research Councils. In 1986, for every £1.00 that was distributed by the Research Councils for specific projects, the universities received £1.27 to cover the underlying costs, including all aspects of implementing regulations. By 2003, according to recent figures, for every £1.00 of Research Council investment, the universities will receive 55p for the provision of a well-found laboratory.<sup>4</sup>

16. The upshot of this is that many university departments find not that the regulatory regime for research is inherently too burdensome, but that implementing it within current funding levels and mechanisms is problematic. At least one participant in the Task Force’s Science Stakeholder meeting described how an almost unworkably large proportion of the time of his technical staff was taken up on implementing regulation. This is not really because there is too much regulation – it is because there are too few technicians.

17. Although the comments in paragraphs 13 to 16 detail a specific complaint about funding, they are symptomatic of a more general phenomenon, which is that there is no requirement for funding policies (such as the decision to change the balance between Research Council and Funding Council investment) to take any account of the duties carried by certain funders (such as the need for Funding Councils to fund universities’ regulatory regimes).

### ***Back-door regulation of university research***

18. Although the practice does not constitute regulation *per se*, central government agencies are increasingly attempting to control university research. For example, the Higher Education Funding Council for England (HEFCE), in its review of research funding in 2000-2001 proposed that seven new strings and conditions be attached to research funding, and also resurrected the idea of an eighth condition, which had already been comprehensively dismissed by an earlier consultation.<sup>5</sup>

19. As the conditions are implemented, funding will, for example, become linked to the output of doctoral research degrees. In other words, a new regulation will have been implemented via the back door, whereby university departments will not be funded unless they meet some arbitrarily-defined criteria.

20. The government's cross-cutting review of science said in 2000 that "HEFCE funding gives universities the capacity to undertake research, and in particular the *flexibility* to pursue "blue skies research...to minimise the risk of over-determining the direction of university research" [our italics].<sup>6</sup>

21. With this in mind, it is highly undesirable that new control measures should be introduced, even if they are not formally defined as regulations, and thus fall outside the strict remit of the Better Regulation Task Force.

### ***Implementing Health and Safety regulations***

22. Universities take the implementation of health and safety regulations seriously, and generally require researchers to undertake the fullest precautions.

23. The level of risk assessment, however, has in some cases become absurd. For example, one university's website, in detailing the plans that should be made for geographers and ecologists to work on agricultural land, deals with the "risk of personal injury caused by boundary fences, " by saying: "If working close to fences etc. avoid working with your back the fence, in case you back into it".

24. There is clearly no regulation that says scientists may not walk backwards in fields, nor indeed is there one that requires universities to draw the attention of researchers to the dangers of walking backwards in fields. The universities do not include this material in their advice about risk assessment out of a sense of the ridiculous, but because a culture has grown up in which institutions believe they must implement the strictest interpretation of regulations, for fear of the consequences.

25. The Government should ensure that it is abundantly clear that universities are under no threat if they allow researchers to walk backwards in fields (or do any of the other absurdly trivial things that are included in risk assessments) but only if they actually break the kind of serious regulations that everyone agrees are necessary.

***The unique position of the universities - the 25% regulation***

26. Many regulations regarding the setting up and conduct of science-based companies, especially high-technology start-up companies, appear to be based on the assumption that the financial backers are, on the whole, profit-making companies themselves.

27. But most spin-out companies from universities (of which there is a rapidly growing number)<sup>7</sup> are backed initially by the university from which they originated. Currently, a university can only own a 25% stake in a company for the company to be classified as a “small or medium-sized enterprise” (SME), with all the tax and other benefits that this status brings.

28. The rule is obviously designed to prevent large commercial companies from hiving off sections of their activities into wholly-owned subsidiaries, and then allowing the subsidiaries to claim the benefits of being an SME.

29. But universities are entirely different from large profit-making companies, and SBS has heard anecdotal evidence that the rule is currently stifling the development of high-technology spin-out companies, as universities find that they must sell equity in companies that are not yet ready in order for the firms to qualify for the benefits of being SMEs.

30. Since encouraging spin-out companies is an important part of the government’s economic policy, this regulation should be lifted in cases where the large organisation owning the stake in the SME is a university.

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Notes and References

<sup>1</sup> ***Science and the Public: A Review of Science Communication and Public Attitudes to Science in Britain.*** Office of Science and Technology/The Wellcome Trust, London (2000).

<sup>2</sup> ***Science and Society***, House of Lords Select Committee on Science & Technology, 3<sup>rd</sup> Report, Session 1999-2000 [HL Paper 38].

<sup>3</sup> ***Science in Schools***, First Report of the House of Lords Select Committee on Science and Technology, Session 2000-2001.

<sup>4</sup> ***Forward Look 2001: Government-funded science, engineering & technology***, The Stationery Office London (2001).

<sup>5</sup> ***Review of Research: Consultation.*** Higher Education Funding Council for England, London [HEFCE 00/37].

<sup>6</sup> ***Cross-cutting study of science research funding: Analysis, arguments and proposals***, Her Majesty’s Treasury, 2000.

<sup>7</sup> SBS, *Science in Schools*, 1999/2000/2001/2002/2003/2004/2005/2006/2007/2008/2009/2010/2011/2012/2013/2014/2015/2016/2017/2018/2019/2020/2021/2022/2023/2024/2025/2026/2027/2028/2029/2030/2031/2032/2033/2034/2035/2036/2037/2038/2039/2040/2041/2042/2043/2044/2045/2046/2047/2048/2049/2050/2051/2052/2053/2054/2055/2056/2057/2058/2059/2060/2061/2062/2063/2064/2065/2066/2067/2068/2069/2070/2071/2072/2073/2074/2075/2076/2077/2078/2079/2080/2081/2082/2083/2084/2085/2086/2087/2088/2089/2090/2091/2092/2093/2094/2095/2096/2097/2098/2099/2100/2101/2102/2103/2104/2105/2106/2107/2108/2109/2110/2111/2112/2113/2114/2115/2116/2117/2118/2119/2120/2121/2122/2123/2124/2125/2126/2127/2128/2129/2130/2131/2132/2133/2134/2135/2136/2137/2138/2139/2140/2141/2142/2143/2144/2145/2146/2147/2148/2149/2150/2151/2152/2153/2154/2155/2156/2157/2158/2159/2160/2161/2162/2163/2164/2165/2166/2167/2168/2169/2170/2171/2172/2173/2174/2175/2176/2177/2178/2179/2180/2181/2182/2183/2184/2185/2186/2187/2188/2189/2190/2191/2192/2193/2194/2195/2196/2197/2198/2199/2200/2201/2202/2203/2204/2205/2206/2207/2208/2209/2210/2211/2212/2213/2214/2215/2216/2217/2218/2219/2220/2221/2222/2223/2224/2225/2226/2227/2228/2229/2230/2231/2232/2233/2234/2235/2236/2237/2238/2239/2240/2241/2242/2243/2244/2245/2246/2247/2248/2249/2250/2251/2252/2253/2254/2255/2256/2257/2258/2259/2260/2261/2262/2263/2264/2265/2266/2267/2268/2269/2270/2271/2272/2273/2274/2275/2276/2277/2278/2279/2280/2281/2282/2283/2284/2285/2286/2287/2288/2289/2290/2291/2292/2293/2294/2295/2296/2297/2298/2299/2300/2301/2302/2303/2304/2305/2306/2307/2308/2309/2310/2311/2312/2313/2314/2315/2316/2317/2318/2319/2320/2321/2322/2323/2324/2325/2326/2327/2328/2329/2330/2331/2332/2333/2334/2335/2336/2337/2338/2339/2340/2341/2342/2343/2344/2345/2346/2347/2348/2349/2350/2351/2352/2353/2354/2355/2356/2357/2358/2359/2360/2361/2362/2363/2364/2365/2366/2367/2368/2369/2370/2371/2372/2373/2374/2375/2376/2377/2378/2379/2380/2381/2382/2383/2384/2385/2386/2387/2388/2389/2390/2391/2392/2393/2394/2395/2396/2397/2398/2399/2400/2401/2402/2403/2404/2405/2406/2407/2408/2409/2410/2411/2412/2413/2414/2415/2416/2417/2418/2419/2420/2421/2422/2423/2424/2425/2426/2427/2428/2429/2430/2431/2432/2433/2434/2435/2436/2437/2438/2439/2440/2441/2442/2443/2444/2445/2446/2447/2448/2449/2450/2451/2452/2453/2454/2455/2456/2457/2458/2459/2460/2461/2462/2463/2464/2465/2466/2467/2468/2469/2470/2471/2472/2473/2474/2475/2476/2477/2478/2479/2480/2481/2482/2483/2484/2485/2486/2487/2488/2489/2490/2491/2492/2493/2494/2495/2496/2497/2498/2499/2500/2501/2502/2503/2504/2505/2506/2507/2508/2509/2510/2511/2512/2513/2514/2515/2516/2517/2518/2519/2520/2521/2522/2523/2524/2525/2526/2527/2528/2529/2530/2531/2532/2533/2534/2535/2536/2537/2538/2539/2540/2541/2542/2543/2544/2545/2546/2547/2548/2549/2550/2551/2552/2553/2554/2555/2556/2557/2558/2559/2560/2561/2562/2563/2564/2565/2566/2567/2568/2569/2570/2571/2572/2573/2574/2575/2576/2577/2578/2579/2580/2581/2582/2583/2584/2585/2586/2587/2588/2589/2590/2591/2592/2593/2594/2595/2596/2597/2598/2599/2600/2601/2602/2603/2604/2605/2606/2607/2608/2609/2610/2611/2612/2613/2614/2615/2616/2617/2618/2619/2620/2621/2622/2623/2624/2625/2626/2627/2628/2629/2630/2631/2632/2633/2634/2635/2636/2637/2638/2639/2640/2641/2642/2643/2644/2645/2646/2647/2648/2649/2650/2651/2652/2653/2654/2655/2656/2657/2658/2659/2660/2661/2662/2663/2664/2665/2666/2667/2668/2669/2670/2671/2672/2673/2674/2675/2676/2677/2678/2679/2680/2681/2682/2683/2684/2685/2686/2687/2688/2689/2690/2691/2692/2693/2694/2695/2696/2697/2698/2699/2700/2701/2702/2703/2704/2705/2706/2707/2708/2709/2710/2711/2712/2713/2714/2715/2716/2717/2718/2719/2720/2721/2722/2723/2724/2725/2726/2727/2728/2729/2730/2731/2732/2733/2734/2735/2736/2737/2738/2739/2740/2741/2742/2743/2744/2745/2746/2747/2748/2749/2750/2751/2752/2753/2754/2755/2756/2757/2758/2759/2760/2761/2762/2763/2764/2765/2766/2767/2768/2769/2770/2771/2772/2773/2774/2775/2776/2777/2778/2779/2780/2781/2782/2783/2784/2785/2786/2787/2788/2789/2790/2791/2792/2793/2794/2795/2796/2797/2798/2799/2800/2801/2802/2803/2804/2805/2806/2807/2808/2809/2810/2811/2812/2813/2814/2815/2816/2817/2818/2819/2820/2821/2822/2823/2824/2825/2826/2827/2828/2829/2830/2831/2832/2833/2834/2835/2836/2837/2838/2839/2840/2841/2842/2843/2844/2845/2846/2847/2848/2849/2850/2851/2852/2853/2854/2855/2856/2857/2858/2859/2860/2861/2862/2863/2864/2865/2866/2867/2868/2869/2870/2871/2872/2873/2874/2875/2876/2877/2878/2879/2880/2881/2882/2883/2884/2885/2886/2887/2888/2889/2890/2891/2892/2893/2894/2895/2896/2897/2898/2899/2900/2901/2902/2903/2904/2905/2906/2907/2908/2909/2910/2911/2912/2913/2914/2915/2916/2917/2918/2919/2920/2921/2922/2923/2924/2925/2926/2927/2928/2929/2930/2931/2932/2933/2934/2935/2936/2937/2938/2939/2940/2941/2942/2943/2944/2945/2946/2947/2948/2949/2950/2951/2952/2953/2954/2955/2956/2957/2958/2959/2960/2961/2962/2963/2964/2965/2966/2967/2968/2969/2970/2971/2972/2973/2974/2975/2976/2977/2978/2979/2980/2981/2982/2983/2984/2985/2986/2987/2988/2989/2990/2991/2992/2993/2994/2995/2996/2997/2998/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