

they existed they would not serve their purpose. Chlorinated hydrocarbons used as dry cleansing agents for textile fabrics pollute the environment too. There is a certain amount that cannot be recovered in closed cycles and that has to be repurchased continually by the user; it is discharged into the environment and represents a hazard in particular to the groundwater. In my country the annual amount varies between 300 and 600 tons of such hydrocarbons. In the Federal Republic of Germany, the production of detergents and cleansing agents quintupled during the past 30 years. Therefore, the pollution of the environment by these substances grew, although tightened legislative measures have been enacted since the promulgation of the Detergent Law in 1961. In addition, chemical substances are being used, the effects of which on living organisms we do not yet sufficiently know. Since our knowledge of the effects of a substance dispersed widely throughout the environment is never exhaustive, it is reasonable to be prudent for environmental reasons and not use detergents any more than necessary. Hygiene does not mean sterility. In a liberal, constitutionally governed state this goal should not be achieved by means of public laws but by environmentally conscious behavior of its citizens. Beyond that, political action has to work toward the aim that released into the environment are only those detergents and cleansing agents which we believe that various media (water, soil and air) can receive without harm, and that they are able to degrade them over as short a period of time as possible into harmless substances. The introduction of new additives must be programmed in such a moderate way in terms of time, regional dispersion and quantity that science and politics are granted enough time to test their environmental compatibility. The same applies to substitutes of problematic substances, the effects of which are fairly well known. In the assessment of a detergent or a cleansing agent, parameters have to be considered such as hygiene, care of laundry and washing machines, environmental compatibility and water and energy consumption as well as the cost of the product. From the washing machine manufacturers, we need machines that soften the water as far as possible to reduce the necessary amounts of detergents; we need "intelligent" machines that inject certain components of the detergents only when they are needed for a specific part of the washing process. The closer manufacturers and merchants cooperate in development and marketing with public authorities, the smaller becomes the necessity for public authorities to interfere with the market by means of prohibition or restrictions.

10.2 Social Changes and the Detergents-Environmental Conflict



Wouter van Dieren
Director, Institute for Environment
and Systems Analysis, Emmastraat
16, 1075-HT Amsterdam, The Netherlands

Out of many possible consumer products, detergents and related products have been or are being depicted as

symbolic targets for environmental action, despite the products' improvements in environmental safety. Why is this? Four major causes can be defined: (a) the accidental time parallel between early environmental awareness and the public perception of the "detergent foam" on surface waters; (b) the role of eutrophication, being the first widely perceived water pollution, which evolved into a first institutionalization in science, legislation, politics and activism; (c) the early role of the detergent industry in these conflicts, being defensive or aggressive ("convince and win" attitude) rather than concerned and cooperative, which behavior endangered independent scientific and legislators' careers, resulting in suspicion toward the detergent industry gaining widespread social momentum; and (d) the role of advertising. Despite general criticism, detergent advertising has continued to play a catalyst's role in conflict generation. It has (a) inflated the concept of innovation; (b) motivated emancipatory movements to raise arms against the detergent business; and (c) failed to communicate the principles of hygiene. In order to deal with these conflicts, the detergent industry is generally unable to adjust to the codes of politics and legislation. Its main error in this is the "illusion of control," the assumption that there are means eventually to manage the causes and effects of the total chain of conflict. The consequence of this is that the only long-term effective management approach, which can be termed "networking + integration," hardly gets any attention. Adaptions in chemical formulations to environmental pressure turn out to have little effect in narrowing the credibility gap, which has been created throughout the years by the detergent industry vis-a-vis the social environment. Internal mechanisms within the detergent industry are not properly adapted to the challenges of the changing society. The dominance of the marketing culture over the R&D culture keeps creating tensions in the development of proper strategies. In R&D, the inclination is to research, develop and adapt, while in marketing there is an expectancy for quick solutions, also originating in overidentification with branch and company. One may fear that therefore insufficient emphasis will be laid on future conflict solution and policy negotiations. Conflicts can be expected on phosphates and eutrophication, particularly in countries with evolving environmental and consumers' organizations (such as Spain, Mexico, Greece and Brazil), on the use of phosphate-replacing compounds, and on the role of tensides and bleaches. There is a shift from research and concern over hydro-ecosystems to aquatic toxicology and moreover to overall water scarcity. As all detergents tend to end in surface water, people in the detergent industry may expect to become a target or a partner in the politics of water scarcity, but the choice where to stand is theirs.

10.3 Industry Viewpoint



Richard J. Duggan
Unilever Research, Port Sunlight
Laboratory, Quarry Rd. E., Bebington
Wirral, Merseyside L63 3JW,
England