water affairs
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MINISTER OF WATER AND ENVIRONMENTAL AFFAIRS

NATIONAL ASSEMBLY: QUESTION 1695 FOR WRITTEN REPLY

A draft reply to the above-mentioned question asked by Mr G R Morgan (DA); is attached for your consideration.

DIRECTOR-GENERAL (Acting)

DATE: 11/6/10

DRAFT REPLY APPROVED/~~AMENDED~~

MS B P SONJICA, MP
MINISTER OF WATER AND ENVIRONMENTAL AFFAIRS

DATE: 21. 06. 2010

NATIONAL ASSEMBLY

FOR WRITTEN REPLY

QUESTION NO 1695

DATE OF PUBLICATION IN INTERNAL QUESTION PAPER: 28 MAY 2010
(INTERNAL QUESTION PAPER NO. 15)

1695. Mr G R Morgan (DA) to ask the Minister of Water and Environmental Affairs:

(1) Whether, with reference to the reply to question 539 on 9 June 2008, the Water Research Commission has completed its study on low phosphate detergents; if not, why not; if so, what are the results of this study;

(2) whether her department intends banning phosphates in detergents; if not, what is the position in this regard; if so, (i) what are the relevant details and (ii) what steps does her department envisage taking in this regard? NW1961E

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REPLY:

(1) The Water Research Commission (WRC) Project K5/1768: Investigation of the positive and negative consequences associated with the introduction of low-P detergents commenced in 2007 and was completed early 2010.

The following findings were made:

- The growing recognition of the role that phosphate contained in powdered laundry detergents, play in the eutrophication of water resources, coupled with the apparent failure of the legislated 1mg/ℓ effluent phosphate concentration standard to control this problem, prompted the WRC to solicit a project to investigate the positive and negative consequences associated with the introduction of zero-phosphate (zero-P) powdered laundry detergents into the South African market.

- A survey of available literature indicated that regulation of detergent phosphate is widely practiced to address eutrophication problems, with many countries in Europe and many states in the USA either banning phosphate in detergents or introducing concentration limits.

- The project found that the impact of detergent phosphorus on WWTWs' phosphate loading varies significantly between facilities, depending on the relative contribution made by domestic and industrial sources. It may be up to 50% (SRP – Soluble Reactive Phosphorous) and 32% (TP – Total Phosphorous) in WWTWs treating predominantly residential sewerage. Removing the detergent component of total phosphorus load, would thus result in a reduced cost associated with the removal of phosphates for WWTWs that continue to strictly target the 1mg/ℓ standard. (The benefit of the reduced phosphate load will in such a case not be experienced by the wider environment. The 1mg/ ℓ standard would have to be reduced in order to pass the benefit onto the environment.) On the other hand, the phosphate concentration in effluent from facilities **not** operating to the 1mg/ℓ standard is likely to be reduced by up to 50% (SRP).

- The impact of detergent phosphate on the TP of key dams was calculated to vary significantly depending on the level of residential settlement, and the efficiency of WWTWs in its catchment. Estimates for reductions in in-dam TP concentrations due to the elimination of detergent phosphate, ranged between 3% and 35%. (The summed reduction for all the 24 priority dams investigated was 11 - 12%) The reduced TP concentrations translate into a modelled 2.5% to 30% reduction in chlorophyll 'a' concentrations within the key dams. (The summed reduction for all the 24 priority dams investigated was 12%). In both cases, dams that are currently eutrophic are amongst those that will benefit most. The impact of detergent phosphate removal, and the consequent predicted reduction in algal concentrations in dams, on the costs of water purification was assessed to be a modest R9 per Mℓ, when calculated for the three dams which showed the greatest potential.

- A qualitative cost benefit analysis indicated that a switch to zero-P detergents would offer potential benefits for the environment, the water purification industry and manufacturers, with negligible negative impacts to WWTWs, the WDCS and the consumer. This finding is significant in that it reverses the findings of previous cost benefit studies which have shown the introduction of zero phosphate detergents to have a net cost to society. The shift to that of a net benefit is largely due to the rising cost of phosphate and the change in understanding that zero-P detergents are not damaging to washing machines and fabric.

- Based on the findings that the **elimination of phosphorus from detergents is both beneficial and desirable**, it is thus recommended that the replacement of phosphate containing detergents with zero-P alternatives should be carried out as soon as is feasible.

(2)(i) The WRC (KSA 1) is in the process of creating a policy and technical brief for this project. The policy brief will outline the following conclusion:

Based on the findings that the **elimination of phosphorus from detergents is both beneficial and desirable**, it is thus recommended that the replacement of phosphate containing detergents with zero-P alternatives should be carried out as soon as is feasible.

(2)(ii) Banning needs to consider the following:

If phosphates are to be removed from detergents it is likely to be replaced by zeolite. With regard to zeolite, several issues scored negatively on the cost benefit analysis, such as the inability to recycle zeolite and hence the increased volume of sludge waste that may be produced, the cost of upgrading manufacturing plants and the possibility of residue being left on clothes.

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