1 Let us try

1.1 Stating the objective function

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$$
\begin{aligned}
\min \quad & BFC\left(\sum_{i\in I} Fc_i u_i\right) + BEC\left(\sum_{i\in I}\sum_{j\in J}\sum_{p\in P} x_{ijp} Ec_{ijp} y\right) \\
& + BTC\left(\sum_{i\in I}\sum_{j\in J}\sum_{p\in P} x_{ijp} Tc_{ijp}\right) \\
& + BWC\left(\sum_{i\in I}\sum_{j\in J}\sum_{p\in P} x_{ijp} Wc_{ijp}\right) \\
& + BZC\left(\sum_{i\in I}\sum_{j\in J}\sum_{p\in P} x_{ijp} Z_{ijp}\right) Zc
\end{aligned} \tag{1}
$$

1.2 Stating the constraints

The first constraint ensures that the demand of each customer is satisfied:

$$\sum_{i\in I} x_{ijp} = D_{jpy}, \qquad \forall j \in J, p \in P, y \in Y \tag{2}$$

The second formula makes sure that the maximum

$$\sum_{j\in J}\sum_{p\in P} x_{ijp} \leq u_i, \qquad \forall i \in I \tag{3}$$

Specific breweries desire to be supplied by at least two suppliers for some specific type of product code. This is ensured by the following two formulas:

$$\sum_{i\in I} J_{ijp} \geq 2, \qquad \forall j \in J, p \in P \tag{4}$$

$$x_{ijp} \geq b_{ijp} M_{jp} \tag{5}$$